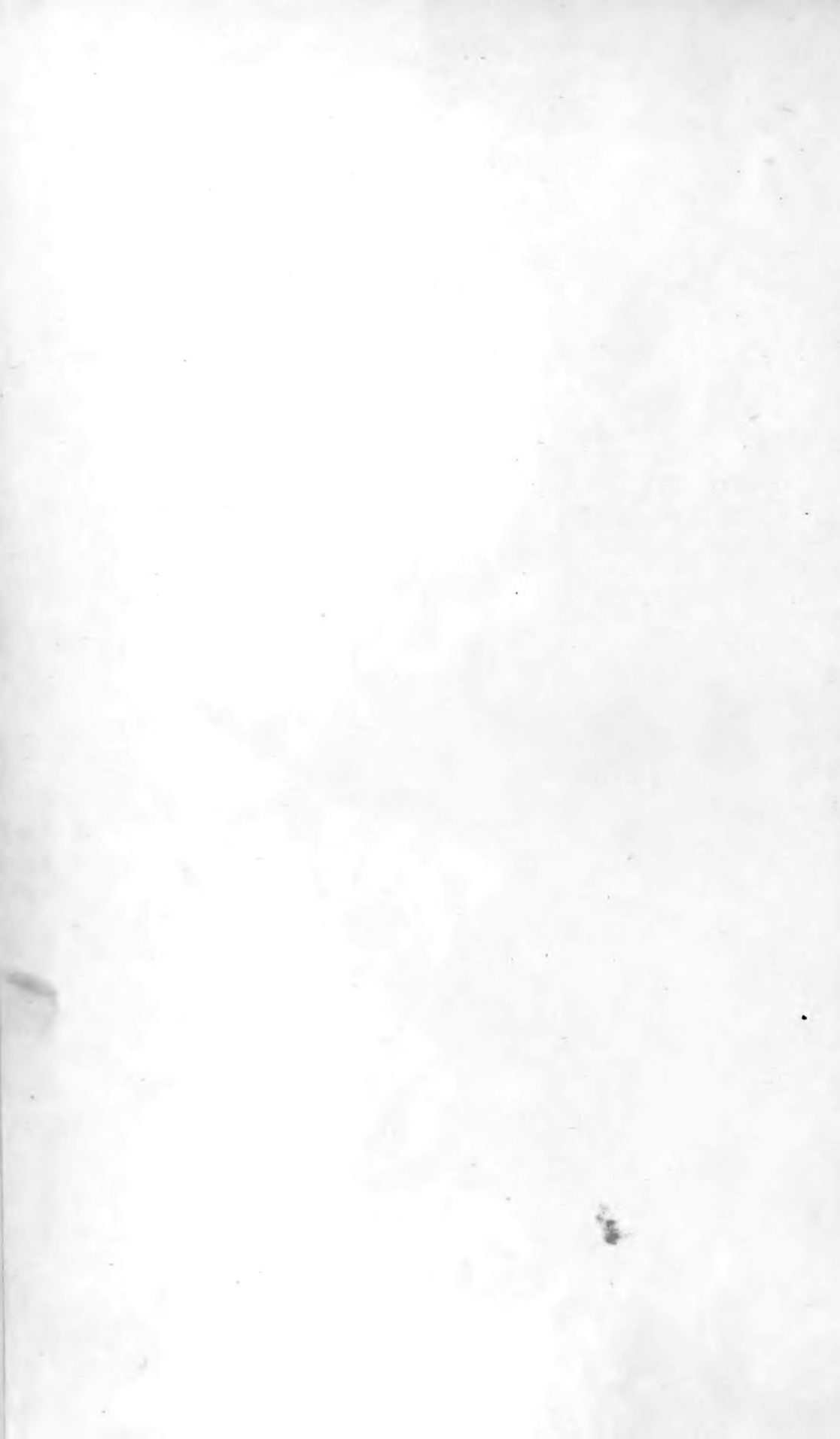


ZS 72





MOUSTACHED WARBLER (*Lusciola melanopogon*).

CAMBRIDGE, AUGUST 9TH, 1946.

From a painting by Dr. E. A. R. Ennion

(See p. 387 and Vol. xl. pp. 98-104.)

BRITISH BIRDS

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CHIEFLY TO THE BIRDS ON THE BRITISH LIST

EDITED BY

BERNARD W. TUCKER, M.A., F.Z.S., M.B.O.U.

ASSISTED BY

NORMAN F. TICEHURST, O.B.E., M.A. F.R.C.S., M.B.O.U.

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A. W. BOYD, M.C., M.A., F.Z.S., M.B.O.U

Volume XLI

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5, WARWICK COURT, W.C.1.

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ERRATA.

VOL. XL.

- p.* 383 Report of the Cambridge Bird Club, line 2 from bottom, for "maintained" read "mentioned."

VOL. XLI.

- pp.* 21-2. Under "Redstart in Co. Kerry," for "Darryname" read "Darryname."
- p.* 214. Under "Pied Wagtail feeding young on fish," for "trout-fly" read "trout-fry."
- p.* 273. Line 11 from bottom, for "Waivarapa" read "Wairarapa".
- p.* 274. Line 4, for "to" read "in."
- p.* 279. Under "Spotted Redshank in Anglesey," line 5, for "Dr. Plummer" read "Dr. Plimmer."
- p.* 338. Line 13 from bottom, for "O. P. Lawrence" read "C. P. Lawrence."
 Line 9 from bottom, for "Matthews's" read "Mathews's."
- p.* 339. Line 5 from bottom, for "Nacnae" read "Macnae."
- p.* 345. Under "Crested Larks in County of London," for "*Alauda cristata*" read "*Galerida cristata*."

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REPORT ON THE IMMIGRATION OF WAXWINGS, WINTER, 1946-7

BY

JOHN GIBB.

THE invasion of Waxwings (*Bombycilla g. garrulus*) into the British Isles in the winter of 1946-1947 was the heaviest recorded for which comparative details are available. The greatest numbers arrived on the east coast from Inverness-shire south to Yorkshire in November. They were preceded by a few early stragglers in October and one, recorded in the report of the Scottish Ornithologists' Club, in the last week of August from Fort William, Inverness-shire. October birds are reported from the Shetland Isles, Derbyshire and, most remarkable, two from northern Donegal on October 20th. Early in November large flocks appeared on the east coast of Scotland and these were closely followed by rather lesser numbers on the coasts of Northumberland, Durham and Yorkshire; in Yorkshire small parties were seen flying in off the sea. The figures in Table I show the percentages of birds reported in South and North England, Scotland and Ireland in half-monthly periods from October to April. There are too few records from Wales to make similar comparison. *The figures do not in any way represent a census* of all the birds involved in the invasion, but they do indicate clearly in a *relative* measure the periods of initial invasion and subsequent decline in each of the four main areas.

Area	October		November		December		January		February		March		April		Total birds re- corded*
	1st	2nd	1st	2nd	1st	2nd	1st	2nd	1st	2nd	1st	2nd	1st	2nd	
South England	—	—	0.9	1.7	3.4	19.3	14.6	16.0	15.8	17.2	6.7	3.8	0.4	—	1,400
North England	—	0.03	8.9	16.3	27.8	22.3	10.2	3.5	7.6	3.6	0.34	0.03	0.03	0.05	3,800
All England	—	0.02	6.8	12.3	21.2	21.6	11.4	6.9	9.2	7.5	2.1	1.0	0.1	0.04	5,200
Scotland	0.01	—	31.6	50.5	9.0	3.9	1.9	1.7	0.4	0.5	0.23	0.13	0.11	—	7,100
Ireland	—	1.0	—	—	4.6	61.0	21.7	5.1	4.6	—	—	1.0	0.52	—	200
British Isles	0.01	0.02	20.7	33.8	14.0	12.1	6.2	3.9	4.1	3.3	0.98	0.52	0.12	0.02	12,500

TABLE I TO SHOW SPREAD OF WAXWINGS IN THE BRITISH ISLES IN THE WINTER OF 1946-1947.

Figures expressed as percentages of birds reported in each area in half-monthly periods.

*Figures in this column do not represent a census of birds involved.

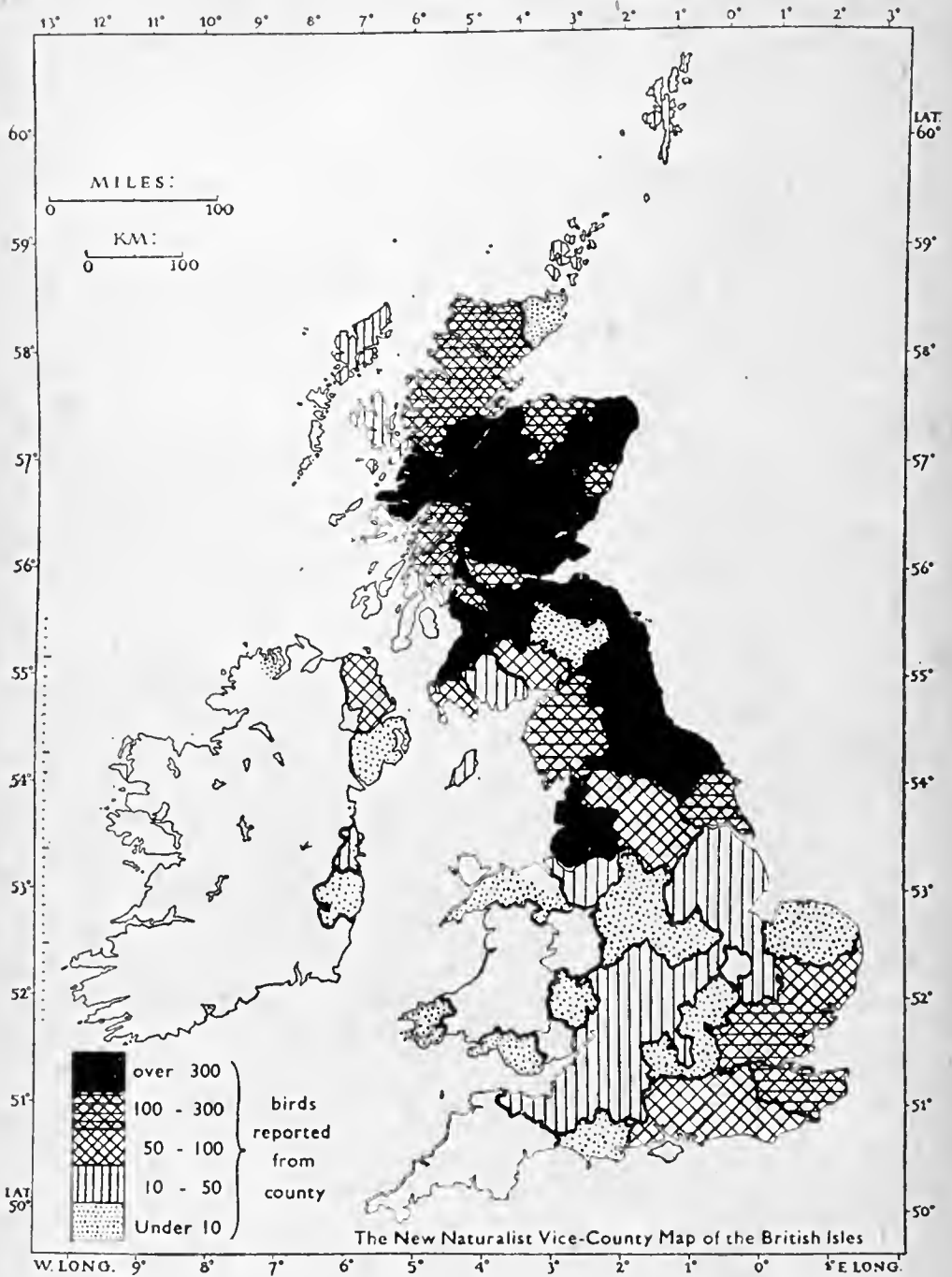
From this Table it can be seen that the peak of the invasion into Scotland occurred in November, with emphasis on the second half of the month. In the north of England this peak was reached two or three weeks later, and in the south of England not until late December and early January. The very rapid decline in numbers so quickly following upon the first influx is most conspicuous and

is well shown in the Table. The figures for the whole of the British Isles show that numbers were high over a period of no more than two months, November and December. But in Scotland alone, 50% of all the birds reported were seen in the second half of November; the whole of that month accounts for over 80%. In the north of England the peak is slightly less accentuated than in Scotland, and the numbers remain high for about six weeks, from mid-November until late December. In the southern half of England, in strong contrast, numbers were fairly steadily maintained for some ten weeks from mid-December until end of February. From this it might be suspected that the Scottish birds were slowly spreading southwards and that the total number of birds in the British Isles as a whole might be relatively constant: but this is *not* supported by the figures. The numbers reported from all England are far less than those from Scotland (although the density of observers is probably higher in England than in Scotland, and fewer birds are likely to have been overlooked in the former than the latter). It seems certain, therefore, that there must have been a very considerable, yet unobserved, exodus from Scotland and northern England before the turn of the year. Mortality within the British Isles, the only alternative to emigration, does not appear to have been particularly heavy and cannot have accounted for the balance of the population. It is worth stressing that the bulk of the Waxwings had left the country before the onset of the severe weather in mid-January. There has been effectively no evidence of a return migration; two isolated records of odd birds flying east or north-east over Catterick, Yorkshire, in mid-March and mid-April may perhaps be suggestive. The latest recorded birds were two at Crook, Westmorland, on May 15th.

Area	November	December	January	February	March
Scotland	34.6	13.6	9.9	5.3	4.2
North England	25.6	28.2	15.1	7.1	2.0
South England	6.0	7.3	9.8	5.7	5.6

TABLE II TO ILLUSTRATE MONTHLY AVERAGE FLOCK-SIZE IN SCOTLAND, NORTH AND SOUTH ENGLAND.

Table II illustrates the gradual dispersal of the large flocks both in time, from month to month, and space, as between Scotland, North and South England. It will be seen that the months in which



MAP TO SHOW DISTRIBUTION OF THE WAXWING IN THE BRITISH ISLES
IN THE WINTER OF 1946-47.

the largest flocks occurred in each of the three areas coincide also with those in which the greatest numbers of Waxwings were reported, as shown in Table I. This correlation is very close. In Scotland the abrupt peak in November of total numbers of birds reported is reflected in the high average November flock-size; in North England the peak in total numbers was rather less accentuated in December and was accurately reflected in the highest average flock-size in the same month; even in South England the slow rise in total numbers reaching an inconspicuous maximum in January and February is again reflected in the gradual rise and steeper fall in flock-size. A distinct though slight lag between the breaking up of the flocks and the diminution in the total numbers may be detected in a comparison of the November and December figures for North England, and the January and February figures for South England in the two Tables. In North England the peak in total numbers is emphatically in December, whereas the peak month for flock-size is December with a very strong November bias. Similarly in South England the peak in total numbers occurred in February rather than January, whereas the peak in flock-size was emphatically in January.

The distribution of Waxwings in the British Isles, shown on the map, reveals an abrupt fall in numbers south of a line Mersey to Humber; and there is a broad band across the country from Cardigan Bay to the Wash from which few records have come. There is some evidence to suggest a small-scale immigration into the Thames mouth, for the counties of Essex, Hertfordshire, Middlesex and Kent seem to have received more birds than might be expected had the birds been stragglers from the north country invasion. Irish records are concentrated on the east coast and the birds probably crossed the North Channel.

FOOD.

Many observers have sent notes on food and feeding habits. Haws* predominate over all other foods until late January. Of about 2,650 birds whose food is recorded slightly fewer than 2,000, or 75%, are recorded as taking haws. A month by month analysis shows that haws form about 98% of all food taken in November, 80% in December and January, 45% in February and less than 10% in March. There is thus a fairly sharp change from haws to other foods in February and March. Hips* are recorded for about 150 birds and constitute about 4% of all foods taken in December; 6.5% in January and 13% in February. *Cotoneaster* berries were recorded for about 140 birds, and were mostly taken from February onwards; in December and January they made up less than 2.5% of all foods taken, yet in February more than 20%, and in March 29%. The fourth most popular food was *Pyracantha* berries, recorded for some 100 birds; they also showed a tendency to be

*For the benefit of non-British readers it may be noted that haws are the fruits of the Hawthorn (*Crataegus*) and hips those of the wild species of *Rosa*.

taken late in the season after the haw-crop was exhausted. It should be remarked that these figures come almost exclusively from England.

Many other less important foods are recorded. Of these, privet berries are noted from seven localities and for 44 birds: six at Bexley Heath, Kent, on January 20th (F. J. Epps); four at Wendover, Bucks., February 14th (F. Saunders); four at Ipswich, Suffolk, February 16th-17th, when all berries of other species were already stripped (Miss L. Riches); six near Blackpool, Lancashire, February 20th (J. Carter); one at Leamington Spa, Warwickshire, February 22nd (D. G. Chandler); five at Wealdstone, Middlesex, March 12th (J. Bailey); about eighteen at Brixton, Surrey, March 29th (P. A. D. Hollom). Rowan berries from four localities for about 30 birds: fifteen at Harlington, Middlesex, January 7th (H. A. Bilby); four at Leigh-on-Sea, Essex, February 7th (*per* H. R. Tutt); five or six at Redhill, Surrey, March 1st (Mrs. Burton); four or five in Oxford, first week of March (Dr. Stobie). Apples from six localities: several eating d'Arcy spice apples on a tree at Dedham, Essex, January 6th-8th (*per* J. N. Mead); one fed entirely on rotten apples put out on a lawn at Evesham, Worcestershire, from February 1st-9th (A. J. Harthan); six on crab-apples on the tree, West Wickham, Kent, February 9th (D. Sorrell); one on ornamental apple fruit, Ipswich, Suffolk, February 17th (Miss L. Riches); and two on another ornamental apple tree at Hampstead, Middlesex, February 22nd (F. L. Stevens); one at Perivale, Middlesex, in first week of March (G. Simpkins). *Viburnum* berries are noted from three localities, about 12 birds: one at Ellerburn, Yorkshire, November 22nd (R. M. Garnett); some at Dunkeld, Perthshire, November 28th (Miss R. Upton); six at Scarborough, Yorkshire, December 15th (A. J. Wallis). *Berberis* from four localities: four at Rothesay, Bute, December 22nd (Lord David Stuart); some in Yorkshire in December (Y. N. U. Report for 1946) one or two in Leicestershire, late February (*per* F. A. Bak); one at Blandford, Dorset, March 8th (A. Bull). One on ornamental cherry fruits at Pinner, Middlesex, February 10th (M. J. Rayner); fourteen on imitation cherry tree at West Wickham, Kent, February 16th-20th (M. T. and M. J. Owens). Three on elderberries, Scarborough, Yorkshire, December 15th (A. J. Wallis). Some of a flock of sixty birds in Wensleydale, Yorkshire, included yew berries in their diet in late January and into December (Lord Bolton). Two eating holly berries at Harome, Yorkshire, in December (A. Gordon). One bird was eating breadcrumbs on the road at Middlesborough, Yorkshire, on January 25th (O. C. Hill), and another fed at a bird-table in company with Starlings and tits where bacon-rind, bread, and cold porridge were available, in Leicester on February 21st (H. B. Turney). A few observers note the habit of aerial flycatching, but it is difficult to estimate the numbers of birds: some of a flock of about 100 in Middlesborough, Yorkshire, were taking long curving

flights from the tree-tops on a fine November day (O. C. Hill) ; six were making short excursions with a moth-like flight in Bristol, January 18th (A. C. Leach) ; a few from a flock of thirty-two were similarly engaged, descending with a Whitethroat-like flight, Effingham, Surrey, January 21st (S. Austin). Eight birds were feeding on a grass verge near Horsham, Sussex, December 25th (G. N. Slyfield) ; and two were feeding on saltings in Cumberland on February 8th (R. Stokoe). Drinking was universal : from river shoals, ponds, puddles, gutters and tanks ; some of a party of seven were seen to eat snow at Watford, Hertfordshire, on February 9th (J. A. Smeed).

Some food preferences are noted. Birds were feeding on *Cotoneaster microphylla* but none on a *C. simonsii* at hand, Middlesborough, Yorkshire, February 5th (O. C. Hill)—but *C. simonsii* is specifically mentioned as food from Stockton-on-Tees, Co. Durham, in mid-February (R. Ward) ; also *C. horizontalis* from Southampton in mid-February (R. E. Williams). Hips were preferred to haws in late January, Co. Antrim (J. A. Benington). Black-berried privet preferred to *Cotoneaster*, *Pyracantha* or *Berberis* in late January at Bexley Heath, Kent (F. J. Epps). The methods of dealing with the berries are various. Haws were eaten whole in Eskdale, Yorkshire, January 4th (A. B. Walker) ; sometimes they were taken on the wing, as the birds hovered in front of each, Furness, Lancashire, March 9th (H. B. Turney). Smaller hips were also swallowed whole at Effingham, Surrey, on January 19th (H. F. Greenfield) and at Lisburn, Co. Antrim, in late January (J. A. Benington) ; but larger ones are "chewed" a little with the sides of the bill before being swallowed, Effingham, January 19th (H. F. Greenfield) ; they may also be taken on the wing. Often hips are partly eaten and in some cases the seeds rejected and dropped ; excreta contain seeds, Lisburn, Co. Antrim, in late January (J. A. Benington). When birds were feeding on *Viburnum* berries at Scarborough, Yorkshire, on December 15th, the pulp was squashed into the mouth leaving the outer skin attached to the branch (A. J. Wallis). One bird at Ramsgate, Kent, was eating *Pyracantha* berries at the rate of 12-20 a minute in late December ; the ground beneath the tree in which they were feeding soon became orange with the droppings, which showed no white matter, only the undigested seeds and a little orange-coloured moisture (L. C. Sargent). Another observer noticed that the pericarp of *Pyracantha* berries was discarded and only the hard centres eaten, Southend-on-Sea, Essex, on February 17th (*per* H. R. Tutt).

[The opportunity is taken to insert here the fewer details of food relating to the Waxwings of the 1943-44 invasion ; these were not published at the time.

Haws were again the main food and about 350 birds were reported as taking them from all parts of the country. Hips and *Cotoneaster* berries were recorded for about forty birds each : the former

from Whitby (O. C. Hill) and Robin Hood's Bay (J. M. Brown), Yorkshire, in January; the latter from Middlesborough, where berries were also picked from the ground (O. C. Hill), Pickering (R. M. Garnett) and Scarborough (W. J. Clarke), Yorkshire, in February, March and April; also from Avoch, Ross-shire in late December (J. Lees) and Balmoral, Aberdeenshire, in early April (F. Gordon). The single Waxwing at Avoch on December 23rd and subsequent days fed on *Cotoneaster* berries for periods of about ten minutes, then rested; in one day it devoured as many as 500 berries which weighed approximately 6 oz. (J. Lees). There are two records of *Berberis* from Scotland: three birds at Forres, Morayshire, on March 31st (P. A. Humble) and two on *Berberis wilsonia* at Gullane, E. Lothian, April 23rd (Sir Harold J. Stiles). Birds in Yorkshire were also observed eating berries of rowan, holly and service trees (O. C. Hill). Some of a party of eight birds in Oxford were eating almond buds in February (B. W. Tucker, F. K. Boston). It is notable that there were no reports of *Pyracantha* berries taken as food. Aerial flycatching by individuals of two flocks of about thirty birds each was noted near Whitby and Middlesborough in February (O. C. Hill), and by some of a flock of thirty-four at Catterick, Yorkshire, in early December; others in Norfolk in November (R. Chislett). The insects being taken at Scarborough were identified as a small beetle, *Omalium rivulare* (R. M. Garnett).]

DISPLAY.

Two observers have given descriptions of the display. That seen by Mr. R. J. Raines at Colnwick, Notts., on December 17th is the most elaborate and complete. A pair was first seen sitting side by side on a bough of a sycamore tree; the male held a haw berry in its bill. The male first fanned its wings, producing a faint rattling sound (? by "wax" tips), then pranced round in a circle on near twigs and returned to the female; then, with raised crest, it presented the berry to the female, uttering a loud trill. The female accepted and ate the berry, whereupon the male repeated the circling movements several times; at the completion of each circle it returned to the female and indulged in a bout of "billing", which was accompanied by high-pitched trills from both birds. The display ended abruptly when the male flew away; but its exact duplicate was seen again later. Mr. R. P. Gait also records courtship feeding and "billing" in Gloucestershire in early January. The male flew to a spray of haws, ate three and then flew to the top of another tree with a berry in its bill; it then sidled up to a female and offered the berry. Both hopped out of the observer's sight, but the male reappeared in a few seconds without the berry. On another occasion a male and female in a flock of seven were apparently paired and always kept together and often apart from the remainder. "Billing" was often seen, the bills not touching. Once, after "billing", the male became very excited and hopped

around from branch to branch behind the female, which remained motionless, as happens in other species prior to coition.

OTHER DATA.

The frequent calls attracted much attention, belying the reputation of the species for silence. That most often used was the high-pitched trill; this was closely followed by the whistling "seep." One observer mentioned a note which sounded like a nestful of young passerines calling for food; this may have been that also likened to a long wheezing note as of a cork being pulled. Another note is said to have resembled the alarm note of a Whitethroat; this preceded the long wheezing note.

One Waxwing picked up dead on February 17th, and appearing to be in good plump condition, weighed exactly 2 oz. A female killed by a cat on January 1st weighed 1oz. 9dr. In Teesdale three were taken by a Sparrow-Hawk (*Accipiter n. nisus*); others went to the cage bird fraternity in the East Riding of Yorkshire (Y.N.U. Report). Rats were blamed for seven piles of feathers on a village rubbish dump where a party of seven had been seen a day or so before. In Hereford one of the few birds recorded from that county came down the chimney to Dr. C. W. Walker's consulting rooms. A strangely marked individual with an extensive white patch on each shoulder and another on each side of the breast was seen in Gloucestershire.

Finally, in acknowledgment, it must be recorded that this report has been compiled entirely from the mass of data sent in by correspondents up and down the country without whose ample assistance nothing could have been published, and to each of whom thanks are due.

(To be concluded.)

BIRDS OF INNER LONDON

BY

M. S. VAN OOSTVEEN.

[The Editors regret that owing to pressure of other matter it was impossible to include this article in Vol. xl.]

THE return of numerous observers to civilian life has resulted in the resumption of bird watching in London, and to a welcome increase in records. It is impossible to publish anything like a full list of these records. The following are perhaps some of the more interesting. The number of birds which either visit or frequent the bombed areas of the City is notable.

ADDITIONAL NOTES IN 1946.

JACKDAW (*Corvus monedula spermologus*).—Over 20 were counted by Mr. W. G. Teagle on November 1st in the S.W. corner of Kensington Gardens.

JAY (*Garrulus g. glandarius*).—The Jay is becoming an increasingly common bird, and is frequently reported from different parts of London.

GREENFINCH (*Chloris ch. chloris*).—Heard singing in Bloomsbury on May 1st by Prof. E. H. Warmington.

GREY WAGTAIL (*Motacilla c. cinerea*).—Mr. H. S. Hayward saw a Grey Wagtail by the edge of the water in an empty water basement by St. Paul's on October 18th.

LINNET (*Carduelis c. cannabina*).—One seen with sparrows in Cripplegate on April 13th (E.H.W.).

NUTHATCH (*Sitta europæa affinis*).—Mr. P. W. E. Currie reports having seen one on a fire escape in Cannon Street on August 30th.

LONG-TAILED TIT (*Aegithalos caudatus rosaceus*).—This rare visitor to the metropolis was reported by Mrs. C. Christopher, who saw and heard three in Dolphin Square, Westminster, on November 9th.

REED-WARBLER (*Acrocephalus scirpaceus*).—Heard singing in the grounds of Kensington Palace by Mrs. D. A. MacAlister on June 21st. Only one previous record a number of years ago.

WHITETHROAT (*Sylvia c. communis*).—Reported seen in Cripplegate on August 1st by Mr. R. B. Warren and on 24th by Mr. F. C. Bromley.

WHEATEAR (*Ænanthe æ. ænanthe*).—A female seen in Cripplegate on August 1st (E.H.W.).

WHINCHAT (*Saxicola rubetra*).—Also reported in Cripplegate on May 17th (R.B.W.).

REDSTART (*Phœnicurus ph. phœnicurus*).—Unlike the Black Redstart, is now an uncommon visitor to London. Recorded in Hyde Park on September 5th by Mr. R. W. Hayman.

BLACK REDSTART (*Phœnicurus ochrurus gibraltariensis*).—See *antea*, Vol. xl, p. 267.

CUCKOO (*Cuculus c. canorus*).—An immature bird seen in Nevill's Court, Fetter Lane, on September 10th by Mr. H. Bentham.

PEREGRINE FALCON (*Falco p. peregrinus*).—Seen on several occasions over Lord's Cricket Ground by Mrs. Rait Kerr, on one occasion being mobbed by gulls; also reported over St. Paul's on April 1st (H.B.).

KESTREL (*Falco t. tinnunculus*).—One nested north of Dean's Lane, near St. Paul's, and young were seen by several observers. Pellets obtained by Mr. Holroyde and subsequently examined, showed the chestnut rump feathers of a Black Redstart.

WIGEON (*Anas penelope*).—Mr. W. G. Teagle recorded a female or immature Wigeon on the Round Pond, Kensington Gardens, on November 1st.

PINTAIL (*Anas a. acuta*).—A drake Pintail was seen on the almost completely frozen Round Pond on December 24th (W.G.T.).

SCAUP-DUCK (*Aythya m. marila*).—Male and female Scaup-Duck were reported from Kensington Gardens between January 5th and February 3rd by Mr. B. A. Richards and Dr. Graham-Brown, and a female was observed on the Round Pond on December 17th (W.G.T.).

LITTLE OWL (*Athene noctua vidalii*).—Reported in ruined buildings of Aldermanbury on October 22nd and November 1st (R.B.W.).

KITTIWAKE (*Rissa t. tridactyla*).—A bird, still showing traces of collar, was observed over the Serpentine, Hyde Park, by D. A. T. Morgan on February 24th, following high gales on the previous day.

THE MATING CEREMONIAL OF SOME DOVES

BY

DEREK GOODWIN.

THE Handbook does not describe the coitional ceremony of the Turtle-Dove (*Streptopelia t. turtur*) and dismisses that of the Stock-Dove (*Columba ænas*) and Rock-Dove (*C. l. livia*) as similar to that of the Wood-Pigeon (*C. p. palumbus*). It is true that in this, as in other aspects of behaviour, all the British doves are remarkably alike, but in respect of the behaviour under discussion differ in some details both from the Wood-Pigeon, as described in *The Handbook*, and between themselves. It would therefore seem worth while to describe that of each species in detail.

My observations have largely been on tame or captive birds, but on different pairs and on many occasions. In the cases of the Stock-Dove and Turtle-Dove these observations have been checked respectively three and five times with wild specimens. In the case of the Rock-Dove, I am not sure that any of the specimens seen were pure wild birds, although some seen in Egypt were in appearance genuine *Columba livia schimperi*; but as the behaviour of scores of feral birds in Britain, Egypt and Malta was identical both *inter se* and with that of the different domestic breeds, it may fairly safely be taken as specific.

Rock-Dove.—Male struts or “marks time” with head erect, feathers particularly on rump somewhat puffed out and tail often slightly spread. He pecks behind his folded wing and as he brings his head back to its former position opens his bill. This may be repeated a great many times standing by female’s side if she is not responsive. When the female is also eager she approaches the male or, if standing by him, goes through the same motions but without opening the bill. She then inserts her bill into that of the male and symbolic “false-feeding” follows in which food is not actually passed. Female then crouches with shoulders somewhat spread and flattened and male mounts her. Immediately after coition the male either struts vigorously away with feathers raised, wings held out slightly at shoulders and tail somewhat spread and depressed, with hen following in the same posture, or else takes wing, clapping loudly in a display flight, in which the female usually joins.

Variations.—Male may adopt crouching posture after coition and reversed coition may then occur. This may also occur when the female is soliciting the ceremony and the male is unable or unwilling to take the dominant rôle.

Female (domestic varieties), if unpaired and eager to pair and nest, may fly up to displaying male and crouch for him to mount her without the normal pre-coitional behaviour.

Male, if repeated attempts fail to evoke response from his mate, may—if she stands passively but will not crouch—mount her and attempt coition, usually unsuccessfully.

Stock-Dove.—As Rock-Dove, but male tends to hold wings more:

widely spread at shoulders and often struts with the folded wings held out horizontally, as do some individual Domestic Pigeons. Female when about to insert her bill seems more effusive and usually shakes her wings in a similar but much less marked manner to that of a young bird soliciting food (however, I think that in this species also, no food actually passes). Male after dismounting, displays to female, bowing with fanned tail raised and neck inflated and uttering the low droning coo peculiar to this display.

Variations (captive birds).—Male once seen to display whilst remaining perched on female's shoulders instead of dismounting after coition. He then dismounted and displayed again in the normal way.

Female, perched on a horizontal log, was indifferent to male, who kept pecking behind wing and proffering his bill. As he pressed up against her she sidled along to the end of the perch, then crouched without having inserted her bill, and coition took place.

The next species described, *Streptopelia risoria*, is not on the British list, but I include it as it more closely resembles the Turtle-Dove than do the foregoing species.

Domestic Collared Dove.—Male "marks time" in a rather graceful manner and pecks behind wing as does Rock-Dove, often turning around on his perch whilst so doing (as may the other species), but does not, to my knowledge, strut with raised wings. Female may insert bill, but more often birds appear merely to "fence" with their bills for a few seconds. As male alights after coition both sexes utter in unison a loud version of the well-known laughing cry, standing in the normal posture in which this cry is uttered, with rump and tail somewhat raised and head held low and thrust forward.

Variations. As Domestic Pigeon, but reversed coition following immediately after normal coition is more frequent.

Turtle-Dove.—As Domestic Collared Dove, but after coition male stands for a few moments in a peculiar erect penguin-like posture with neck-feathers somewhat ruffed out, whilst female postures with raised rump feathers. I have never seen the female actually insert her bill into that of male.

Variations.—None observed personally, but Mr. C. D. Deane saw a case of reversed coition between captive birds in the Edinburgh Zoo. It is, however, not certain that they were of opposite sexes.

I have made no mention of the display of the various male birds because it has been accurately described in *The Handbook* and elsewhere, and not because I do not think it directly related to the mating ceremony. On the contrary, in my experience the latter has *always* been preceded within a short time, although not always immediately, by display of the male to the female. Commonly the male displays and the female may appear passive; but immediately he flies to another perch and adopts the postures to initiate the coitional ceremony she flies to him and reciprocates.

THE BREEDING OF AVOCETS IN ENGLAND IN 1947*

BY

PHILIP E. BROWN AND ESMOND LYNN-ALLEN.

(Plates 1-3.)

DURING the summer of 1947 two small colonies of Avocets (*Recurvirostra avosetta*) established themselves in East Anglia. Apart from the isolated instance of two pairs nesting in Ireland in 1938 (*Handbook of British Birds*, Vol. iv, p. 411), this would appear to be the first occasion when a number of pairs have bred in Britain for more than a century.

The Royal Society for the Protection of Birds took all practicable steps to ensure that the birds were saved from disturbance, whether intentional or otherwise. But the success achieved was very largely due to the landowners concerned, who co-operated wholeheartedly, and to a number of ornithologists and others who helped to form a band of voluntary watchers. It should also be emphasized here that the greater part of this paper is compiled from the notes of Major Lynn-Allen. At the first site the birds were seen in April, though the nests were not found until after the eggs had been laid. At this site four nests were found and it seems probable that a further pair also bred, but there is no proof of this. From the four nests found, twelve eggs hatched and it is known that at least eight young birds successfully reached the free-flying stage. At the second site the situation was much more obscure, as the birds were not discovered to be breeding until July 6th, when there was still one nest containing four eggs. Eight young birds successfully reached the free-flying state, but it is uncertain whether these were the progeny of three or of four pairs of breeding birds.

Summarizing the two sites, nine pairs of adult birds were present during the breeding-season, of which at least seven pairs nested. Altogether sixteen young birds were known to have reached the free-flying state.

Steps have already been taken by the R.S.P.B. to ensure that the birds will be adequately safeguarded should they return in 1948. But it is obviously highly desirable that the birds should be left as quiet as possible until, as we all hope, they succeed in establishing themselves in some numbers.

SITE ONE.

The Avocets were first reported on the marsh early in April, and April 8th is the first date when their presence was confirmed by a competent witness. Sometimes they appeared to be paired off, but the numbers seen varied considerably from day to day. Thus on three consecutive days Major Lynn-Allen recorded four, eleven and seven birds respectively; eleven was the largest number observed at any one time. The birds kept very much together, feeding and preening in a group of shallow lagoons towards the

*A publication of the Royal Society for the Protection of Birds.

seaward side of the marsh. Normally it was difficult to approach nearer than about one hundred yards, and at this distance the birds almost invariably rose into the air, flying round and immediately over the intruders, uttering their distinctive alarm-notes and giving the watchers a perfect presentation of their striking plumage and graceful flight. At this time it was not considered that the party would stay to breed and this lack of optimism, combined with the fact that no real signs of courtship were observed, probably accounts for the fact that the nests were not located until mid-May, when the clutches were complete. Furthermore, the chosen nesting-site, on an island in a lagoon, was some distance away from where we had been accustomed to see the birds.

Three nests were found on May 18th. These were grouped on a low islet, about twenty feet long and fifteen feet broad at the time. Two of the nests were situated in clumps of coarse grass; the third (that shown in the photograph) was out on the bare mud. Two nests each contained four eggs; the other, only two. The missing eggs of this last clutch were found after the others had hatched. One egg, badly holed, had been pushed out of the nest and was hidden by the surrounding grass; the other, broken, was found, when the water receded, embedded in the mud at a distance of some thirty yards from the nest . . . evidence strongly suggestive of a partially successful attack by Carrion Crows. A fourth nest, also containing four eggs, was discovered on May 29th, at the far end of the same lagoon, about two hundred yards away from the others. There was also a fifth pair of birds in close proximity, and these, to judge from their behaviour when we visited the fourth nest, had very probably got young. From the four nests of which we had knowledge, a total of twelve chicks were hatched; and we have every reason to believe that at least eight of these were successfully reared.

The nests were indistinguishable from those of Lapwings, except that they were, perhaps, of somewhat heavier construction, and that the Avocets generally appeared to favour dried reed rather than grass as a nesting-material.

The weather during the incubation-period was exceptionally warm, and it was observed that the birds spent very little time on the nests during the hours of daylight. Major Lynn-Allen, watching a nest for a whole afternoon, saw a parent return to it only twice; and these visits were, apparently, only to see that all was well and to turn the eggs.

But the adult birds were seldom far from the nests and they attacked any dangerous intruder promptly and with vigour. Lesser Black-backed Gulls, Herring-Gulls, crows and even Marsh-Harriers were mobbed and driven away; on one occasion considerable amusement was afforded by the sight of a Sheld-Duck vainly trying to wade ashore on to the islet with three or four Avocets beating at it with their wings from above. On the other hand,

Black-headed Gulls created no show of alarm and they could be seen all day long, standing about on the islet or feeding near by.

During the incubation-period, display and courtship were much in evidence. A presumed female Avocet was twice observed lying flat on the water, with wings and neck outstretched, while her mate hovered in the air above her. Actual coition was only once observed.

Hatching details of the four nests can be summarized thus:—

<i>Nest</i>	<i>Date found</i>	<i>Number of eggs when found</i>	<i>Date hatched</i>	<i>No. hatched</i>	<i>Remarks</i>
1	May 18th	4	June 7th or 8th	4	These 3 nests were those on the islet. The third nest had originally con- tained 4 eggs.
2	May 18th	4	June 6th or 7th	4	
3	May 18th	2	June 7th or 8th	2	
4	May 29th	4	May 31st or June 1st	3	One egg addled.

For obvious reasons it was not desirable to inspect the nests too frequently, but it would appear to be extremely probable that all the eggs in a given clutch hatched within 12 hours of each other.

Once the young had hatched the alarm-displays of the adult birds, performed whenever the chicks were approached, were particularly striking. One such display consisted of a short, steep glide, with wing-tips almost touching above the body and the legs hanging down. "Injury-feigning" was also noted, the bird running swiftly across the mud with one wing trailing; or having entered the water, beating the surface with its wings.

The families stayed in the vicinity of the nests for about a fortnight. Then, as the water had all but disappeared from the nesting-area, the colony broke up and dispersed among the neighbouring lagoons. The young were all on the wing towards the end of July, when eight was the maximum number observed in the air together, but this was not necessarily the maximum number of young birds actually fledged. Soon after this all the birds departed, probably because of the continually receding water due to the dry summer. They were, however, reported at intervals for several weeks after within a ten-mile radius up and down the coast.

The photographs accompanying this paper all refer to this site, and we are very greatly indebted to Commander Robertson, R.N. and to Mr. Robin Powell for permission to reproduce them.



BREEDING OF AVOCETS IN ENGLAND.

UPPER.—ONE OF THE NESTING SITES.

LOWER.—YOUNG BIRD ABOUT ONE DAY OLD, JUNE 8TH, 1917.

(*Photographed by Lt.-Comdr. A. W. P. Robertson, R.N. and R. D. Powell.*)

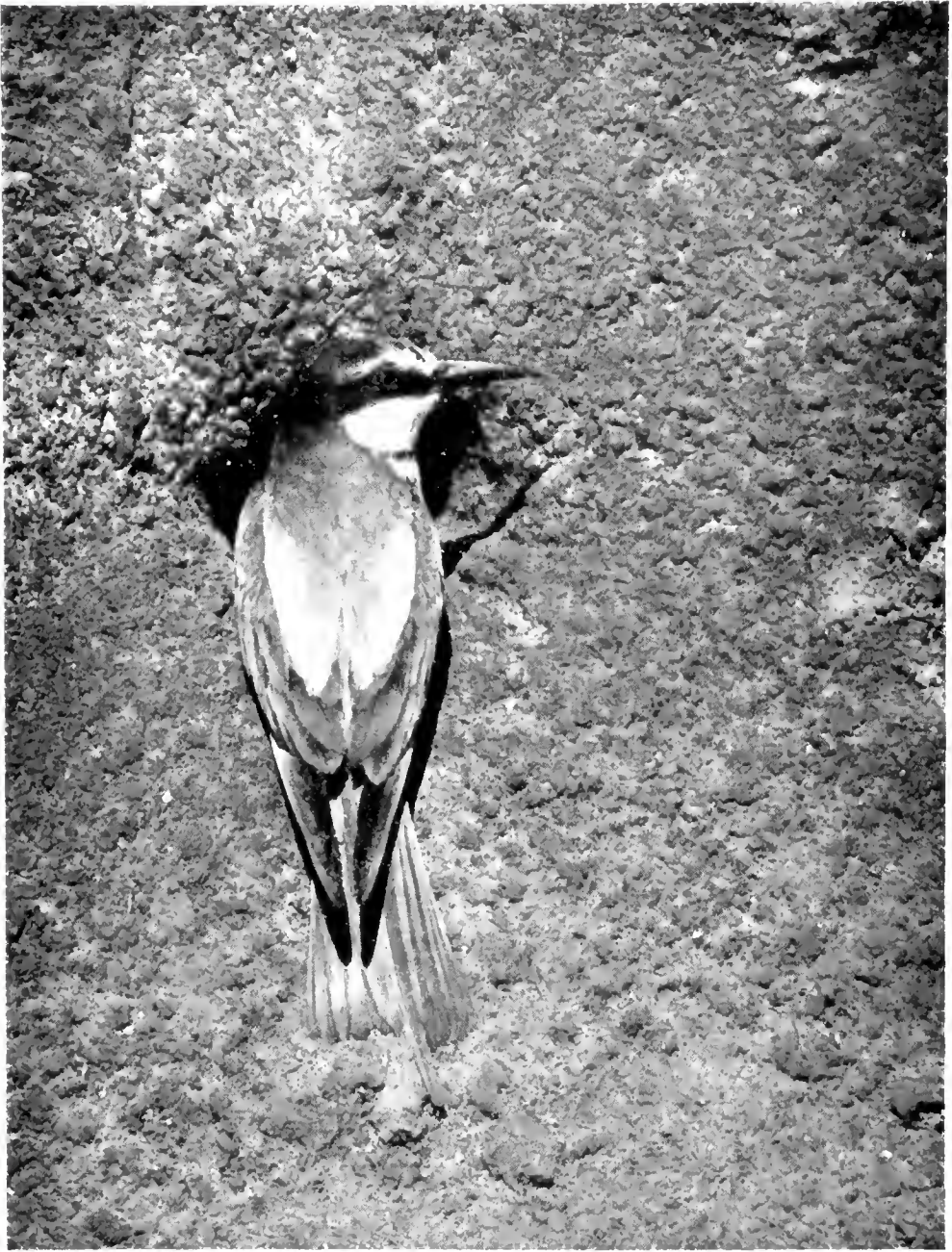


BREEDING OF AVOCETS IN ENGLAND: ONE OF THE NESTS.
(*Photographed by Lt.-Comdr. A. W. P. Robertson, R.N. and R. D. Powell.*)



BREEDING OF AVOCETS IN ENGLAND : YOUNG ABOUT FOUR DAYS OLD, JUNE
4TH, 1947.

(*Photographed by Lt.-Comdr. A. W. P. Robertson, R.N. and R. D. Powell.*)



BEE-EATER (*Merops apiaster*) AT NESTING HOLE. CAMARGUE, 1917.

(Photographed by W. E. Higham.)



BEE-EATER (*Merops apiaster*): CAMARGUE, 1947.

(Photographed by H. A. Patrick.)



BE-EATERS (*Merops apiaster*) CAMARGUE, 1917. MALE ON RIGHT, FEMALE ON LEFT.

(Photographed by G. K. Yeates.)



BEE-EATER (*Merops apiaster*): CAMARGUE, 1947.

(Photographed by G. K. Yeates.)



BEE-EATER (*Merops apiaster*): CAMARGUE, 1947.

(Photographed by G. K. Yeates.)

SITE TWO.

The situation here was much more obscure, mainly owing to the fact that the birds were not discovered to be breeding there until late in the season. On July 6th a nest was found containing four eggs and eight adult birds were observed, apparently in pairs, together with several half-grown young. On July 26th, the eggs having hatched in the last nest some time during the second week in July, two young were observed together. There was a good deal of coarse grass at this site, and as these young birds spent a great deal of time in cover, it cannot be certainly said that these were the only two birds from this last clutch, but it seems tolerably certain that this was so. In addition, six more young birds were reared at this site, for on July 27th, eight adult birds and six young were observed on several occasions in the air together. At the end of July the birds dispersed up and down the coast, the whole party never again being observed together, though three or four birds would often come flying back over the site, occasionally alighting. Thus by the end of the month there remained at the site the two half-grown birds with their parents and one further pair of adults, which seemed at the time to be strongly attached to the site and were suspected of having a nest, but a search failed to reveal anything. Three used nests were found altogether, but it would have been easy to overlook one in the coarse growth and it certainly is not possible to say whether three or four pairs bred.

It seems more than likely that the late clutch found on July 6th was a second one, some accident probably having overtaken the first. This late brood did not fly until towards the end of August, and birds were noted in the vicinity until early September.

In general, the behaviour of the birds at this site was similar to that at the other, but they were not observed to mob Herring-Gulls, which were often present. On one occasion, however, a Heron was most vigorously attacked by the parent Avocets. Two or three swoops with a last second turn-away immediately put the Heron into the air, after which it was followed for some distance by the noisy Avocets.

It was especially noticeable that the birds preferred to feed in the brackish lagoons rather than in the tidal-waters near by. They appeared, in general, to be most active during the first five or six hours of daylight and again for two or three hours in the evening. Most food was procured from the surface of the water with the typical sharp side-to-side sweep of the upcurved bill. But even during the active periods, the actual feeding of the birds appeared to be somewhat desultory; either they got more food from their attempts than would have appeared to be the case, or else, it is suggested, they may get food at night.

Four adults and the two young were under "observation" during the night of July 28th-29th, when a fierce thunderstorm raged from midnight until dawn, but very little could be seen and the birds were only heard on a very few occasions, mostly towards dawn.

STUDIES OF SOME SPECIES RARELY PHOTOGRAPHED.

XII. THE BEE-EATER

PHOTOGRAPHED BY

W. E. HIGHAM, H. A. PATRICK AND G. K. YEATES.

(Plates 4-8.)

AMONGST the most exotic-looking of European birds, the Bee-eater (*Merops apiaster*) is in fact a representative of a group mainly confined to the tropical regions of the Old World. So far as the western portion of its range is concerned it is a characteristically Mediterranean species, though it has bred occasionally in Central Europe. To the British Isles it is a rare vagrant, sometimes in small flocks, for the species is highly gregarious. In 1920 a pair even made an unsuccessful attempt at breeding near Edinburgh, one of the most surprising and intrinsically unlikely events that have occurred in the ornithological history of the British Isles, all the more so since it took place in Scotland, for which the total number of records is only about ten, and not in the south of England, where visitations of the species are least infrequent.

Bee-eaters normally nest in colonies in burrows excavated in stream or river banks or in cuttings, but also in almost flat ground. As already noted, they are extremely sociable birds, and they spend much time on the wing, wheeling hither and thither with an easy and graceful, rather swallow-like action, often in pursuit of flying insects, and constantly uttering a cheerful liquid call, "crüük, crüük" and variations. They also perch freely and have a special liking for telegraph wires where these are available; to observers who have visited suitable districts in the Mediterranean countries or other places where Bee-eaters are common, the spectacle of rows of these birds on the telegraph wires will be a familiar one.

Our photographs were taken in 1947 in a typical breeding haunt in the Camargue (Rhone delta). Mr. Yeates writes: "All the photographs were taken while nest excavation and courtship, which are very closely correlated, were in progress. The perches are "sentinel and/or treading stations", which each pair of birds in the colony seemed to have and to which they were very faithful.

B.W.T.

NOTES.

LARGE GATHERING OF RAVENS DURING BREEDING SEASON.

WITH reference to my note (*antea*, Vol. xl, p. 209) concerning the large gathering of Ravens (*Corvus c. corax*) in Carmarthenshire in March, 1946, I was interested to read Mr. Cadman's note which immediately followed my own.

In reply to Mr. Cadman's query I can say that the birds were present throughout the day, and that they were again present in the breeding season of this year, 1947. Furthermore, I have noticed that there are two other places in Carmarthenshire where Ravens gather: a small coppice about a mile from Whitland, and a wooded valley near Llannan. There are Ravens to be seen at these localities at most times of the year, about sixteen being seen at Whitland on April 18th (and similar numbers in previous years), and about fifteen at Llannan on September 16th, 1946. As there are always Ravens in varying numbers to be seen at these places, it would be interesting to know whether they are gathering places for old or non-breeding birds. These places appear to correspond to the roost in Merionethshire referred to by Mr. Cadman.

DEREK K. BRYSON.

DISPLAY HOVERING OF BULLFINCH.

ON August 14th, 1947, in a wood near Aviemore, Inverness-shire, I saw a male Bullfinch (*Pyrrhula p. nesa*) hovering at about ten feet from the ground near a pine tree with a long fine green blade of grass in his bill. After a few seconds he perched on the tree, then repeated the performance. The third time he did so without the grass.

The hovering varied from four to eight seconds whilst he gradually moved away from tree to tree, hovering and resting till out of sight. A female Bullfinch, presumably his mate, watched unobtrusively from a neighbouring tree and I noticed that the male always turned his back towards her, probably to show his white rump to advantage.

According to J. A. Anderson (*The Handbook*, Supplementary Additions and Corrections) nesting material in the bill is part of male display.

The bird took no food during the time I had it under close observation firstly without and then with 8 x 32 binoculars. A number of observers (*British Birds*, Vol. xxxviii, pp. 94, 154, 258) record hovering whilst feeding, but I can find no record of hovering as part of the male display of the Bullfinch. ENID McEWEN.

[The occurrence of what certainly seems to be a form of display behaviour at such a late date is noteworthy and would seem to be a further example of a recrudescence of sexual behaviour in late summer or autumn.—EDS.]

ORTOLAN BUNTING IN SURREY.

ON August 23rd, 1947, at about 15.30 (G.M.T.) I observed an adult Ortolan Bunting (*Emberiza hortulana*) by an almost dried-up dew-pond on the summit of Nore Hill (800 feet above sea level), North Downs, near Chelsham, north-east Surrey. The bird maintained a crouching posture all the time I watched it—for the space of about four minutes—with its back partly towards me, so that I was unable to see its breast, under-parts or legs, though several times it turned its head furtively in my direction. Its head and nape appeared greyish-green, the mantle brownish streaked with dark brown or black, the tail brownish with white detectable on the outer tail-feathers. The beak was reddish-brown. Encircling the eye, which was black, was a most conspicuous yellow ring or "spectacle," and extending downward from the beak was a pronounced, rather broad, yellowish streak. The chin and throat were yellowish-white bordered on either side with a dusky line. In size it was about the same as a Yellow Bunting (*Emberiza c. citrinella*) but a trifle more heavily built, I thought. I was able to watch it with x6 glasses at a range of not more than 16 yards in brilliant sunshine. It finally flew off in a southerly direction in clipping fashion at the same time climbing steadily, and did not settle again though I followed it out of sight. A short sharp "tsip"-like note was heard as it rose from the pond. HUBERT E. POUNDS.

"INJURY-FEIGNING" OF TREE-PIPIT.

"INJURY-FEIGNING" by the Tree-Pipit (*Anthus t. trivialis*) appears to be rare.

On July 10th, 1936, at Oxted, Surrey, a bird of the species fluttered along the ground after being disturbed from its nest with four eggs. K. R. CHANDLER.

["Injury-feigning" in this species is recorded by the Rev. F. C. R. Jourdain (*Journ. Derbys. Archaeol. and Nat. Hist. Soc.*, 1907, pp. 125-6), by T. A. Coward and C. Oldham (*Fauna of Cheshire*, Vol. 1, p. 173) and by E. Cohen (*antea*, Vol. xxxiv, p. 65). We think "injury-feigning" in all the pipits is more frequent than the meagre published references suggest.—EDS.]

BLUE AND NORMAL EGGS OF SPOTTED FLYCATCHER IN SAME CLUTCH.

A RECENT note by Mr. H. J. Hoffman (*antea*, Vol. xl, p. 115) prompts me to record that on July 23rd, 1941, I found a nest of Spotted Flycatchers (*Muscicapa s. striata*) which contained three normal eggs and one which was pure light blue all over. The shell was quite hard, but rough at the smaller end. RICHARD VAUGHAN.

[Although the blue egg was evidently somewhat defective in shell as well as differing in colouring from the normal type, this case is of interest as showing that (presumably as a result of some physiological disturbance) a blue egg may be actually laid in the same clutch as

normal ones. It would be interesting to know if other cases are known to readers ; no other has been reported to us as a result of Mr. Hoffman's note. Such cases, involving two very different types of eggs, which would appear to be due to more than a mere pigment deficiency, appear to be on a different footing from the well-known cases in, for example, gulls and terns, in which, as a result of a deficiency of this kind, a more or less bluish egg may occur in an otherwise normal clutch.—EDS.]

"INJURY-FEIGNING" OF SPOTTED FLYCATCHER.

ON May 29th, 1947, at Woodstock, Oxon., a Spotted Flycatcher's (*Muscicapa s. striata*) nest was found with five young. Taking the young from the nest caused them to call loudly, and in response both adult birds flew round my head calling loudly, then dropped to the ground and fluttered along with drooping wings. When one young was dropped it called out and both adults repeated the display. Handling the young again half an hour later induced a similar display by the female alone.

B. M. A. CHAPPELL.

RENEWED SINGING OF WILLOW-WARBLER.

MR. F. M. Firth's note under this head (*antea*, Vol. xl, p. 51) indicates a gap in the song-period of the Willow-Warbler (*Phylloscopus t. trochilus*) in July. My own notes confirm this gap and the subsequent revival of song.

I have records from Dorset of Willow-Warbler song in 1944 regularly until July 1st and then not again until July 17th and 27th; in 1945 regularly until June 26th and not again until July 31st; in 1946 until June 26th and not again until July 24th; in 1947 until June 29th and not again until July 18th and 28th, then daily from July 30th until August 9th and last on August 14th. In 1944 and 1945 I was in Carmarthenshire for early August and heard song there regularly until August 12th, 1944, and from August 1st to 4th inclusive, 1945.

P. F. YEO.

COURTSHIP FEEDING OF WILLOW-WARBLER.

ON June 22nd, 1947, a male Willow-Warbler (*Phylloscopus t. trochilus*), which had previously been singing in a thicket near Offham, Sussex, approached a female with a small object in his bill which he thrust into her open bill. He then mounted on her back. It did not appear to me that coition was successfully accomplished, as the female immediately flew off. I find no mention of this habit of the Willow-Warbler in the *Handbook*.

D. D. HARBER.

[For a previous record see *antea*, Vol. xxxix, p. 25.—EDS.]

THE REDSTART IN CO. KERRY.

REDSTARTS (*Phœnicurus ph. phœnicurus*) having bred near Darryname, Co. Kerry in 1946 (*antea*, Vol. xxxix, p. 318) I visited the place on June 13th, 1947. From daylight I made prolonged and

careful search of Abbey Island and the woodlands at and near Darryname, but found no Redstarts present. They could not have escaped notice had they been on the island and I am tolerably certain that they were not in the woods.

Mr. K. Kennedy and his wife did not come across any during a stay of about three weeks at Castlecove in that district during May and June. It seems certain that the birds were not present this year, and this seems worth placing on record.

ROBERT F. RUTTLEDGE.

[As the record of the Redstart's breeding in Co. Kerry at first aroused some scepticism amongst Irish ornithologists on account of the rather early date, coupled with the unusualness of the occurrence, it seems desirable to state expressly that Mr. Pearce, the recorder, has fully satisfied us that he is thoroughly familiar with the species and that the birds were not Black Redstarts (*Ph. ochrurus gibraltariensis*), a possibility which has suggested itself to some in view of the date at which young were observed. We are glad to learn that Mr. G. R. Humphreys and Major Ruttledge, having seen the correspondence, are also satisfied with the validity of the record.—EDS.]

FLEDGING-PERIOD OF LITTLE OWL.

THE following incubation and fledging-periods of a Little Owl (*Athene noctua vidalii*) at Sherriffs Lench, near Evesham, may be of interest. The first egg was laid on May 1st, 1947, and the third on May 4th; two hatched on May 28th and the third egg next day, giving an incubation period of 28-29 days, in agreement with *The Handbook*. The owlets remained in the nest until July 7th, when two left, and the remaining one left next day. The fledging-period was thus 40 days in contrast to about 26 days given in *The Handbook*.

A. J. HARTHAN.

[Mr. Jourdain's figure of "about 26 days" in *The Handbook* appears to be based on a single record in *The Times* of 18.8.19. Haverschmidt (*Ardea*, 1946, p. 240) gives *c.* 35 days.—EDS.]

HOBBY ATTACKING GREEN WOODPECKER.

I WAS much interested in Brian Clifford's note (*antea*, Vol. xl, p. 251) on the Hobby (*Falco s. subbuteo*) attacking but not killing a Green Woodpecker (*Picus viridis pluvius*) as I had a similar experience on September 9th, 1946.

A pair of Hobbies had nested in a stretch of wild downland in Hampshire. Two eggs had been laid in an old Carrion Crow's nest in an ash tree, and the family had been kept under observation throughout the summer. By September 9th the two young had learned to fly, and it was while watching one of the eyasses that I heard shrieking close by. On rounding a line of trees with all possible haste I was in time to see a young Green Woodpecker dive into a stunted yew bush, closely pursued by the female Hobby, which

was ready to strike, with talons outstretched in front of her. She also disappeared from view in the bush, but as I approached she flew off. The Green Woodpecker flew off later "yaffling" in a subdued manner and flying with apparent difficulty, probably due to fright. I am certain it had not been struck and I could find no feathers in the bush, despite the fact that it had plunged in in a most desperate fashion. The incident was also witnessed by my friend K. W. Wooley. Although we were at the spot both before and after this date, we did not see any more birds attacked.

BARRY GOATER.

BREEDING OF MONTAGU'S HARRIER IN COUNTY DURHAM.

ON August 13th, 1947, M. G. Robinson was informed by a game-keeper that a pair of harriers had bred upon a heather-clad moor in West Durham and had reared two or three young. The keeper thought there were probably two pairs present in the early part of the season, but he found no nests and, so far as he knew, there was only one brood of young, which he did not see until they were on the wing. He had not molested the birds and the shooting tenant did not wish him to do so. Robinson visited the site where the young had been seen and there found two well-fledged juvenile Montagu's Harriers (*Circus pygargus*). While he watched, an adult male came in twice and dropped food for the young. During one of the male's visits, a second adult male appeared upon the scene, though it brought no food. A third brown bird was seen, which may have been the female. On August 15th Robinson returned to the site with G. W. Temperley and H. Tully, when three juveniles were seen. These were being visited by an adult male; no female was present, nor was one seen by any other watcher. On subsequent occasions Robinson, Temperley and others visited the site and found the young very strong on the wing; until, on August 21st, Temperley, during a four hour vigil, failed to find any young; though once, two adult males appeared simultaneously, gliding back and forward over the site in company before flying off together. This was the last occasion when any birds were seen. The birds were observed under conditions which made identification certain. In the males there was a complete absence of white on the rumps, and the dark bars on the wings and the streaked underparts were noted, while the juveniles were clearly seen to have unstreaked underparts. The birds were lightly built, with long tapering wings, and the males soared aloft in a most graceful manner.

Previous reliable records of the breeding or attempted breeding of this species in Durham are two only. (1) In the Hancock collection of British Birds there are two specimens in juvenile plumage recorded as having been shot in Wolsingham Park in the Wear Valley in 1835, which Hancock considered had undoubtedly been bred there. (2) On May 15th, 1929, an adult male was trapped

at a nest in course of construction in the heather on Wolsingham Park Moor. M. G. ROBINSON AND GEORGE W. TEMPERLEY.

BEHAVIOUR OF HERON WITH LARGE FISH.

ON September 12th, 1947, in Wanstead Park, Essex, I was watching a Heron (*Ardea c. cinerea*) fishing near a platform of twigs and general flotsam and jetsam floating in the water. Suddenly the heron's bill stabbed into the water and it was obviously struggling with some large and vigorous prey, for it was dragged bodily into the water and only regained its balance and posture by spreading its wings. After some two or three minutes of struggle the heron hauled out what appeared to be a pike (there are a large number of pike in this lake). The fish was about 18 inches to two feet in length and it required quite an effort from the heron to throw it on to the platform. The fish was very lively and jumped about a great deal, but each jump was met by a very forceful thrust from the heron's bill. Twice the bird picked up the fish, which was obviously very heavy and could not be held for more than a second or so.

After 10 minutes there was no further struggling from the fish and the heron stepped round it two or three times. The fish, I thought, was much too large for the heron to consume, but to my surprise, I saw that the bird was going to attempt it. The method adopted was most interesting. The fish being too heavy and too large to be gulped down in the usual way, the heron lowered its head on its side and opened its bill over the head of the fish and started the gulping procedure. It tried gulping spasmodically for seven minutes, but without success. This process was repeated three times, and on the third attempt it managed to get the fish a fair way into its bill and then attempted to lift its head, when the fish again fell out.

This incident covered a period of 45 minutes, after which the heron gave up, flew onto a tree stump, preened itself for five minutes and then flew into the tree-tops.

I got in touch with a keeper to see if there was a row-boat available for I should like to have retrieved the fish to ascertain its accurate identity, weight and length, but unfortunately no boat was available.

HENRY E. ANDREWS.

NIGHT-HERON IN KENT.

ON May 11th, 1947, I identified a Night-Heron (*Nycticorax n. nycticorax*) near Brookland, Romney Marsh, Kent. The bird was viewed through binoculars from a car at a range of about fifty yards, and I was able to compare it on the spot with the coloured plate in Coward's *Birds of the British Isles*. At first sight it appeared to be a small white heron with a dark back and I described it to friends who were with me at the time as having a dark blue back and whitish underparts, with a very clear, narrow white line down the middle of its back. This was later seen to be the long white plume from the crown.

MADELINE E. A. FOOTE.

BEHAVIOUR OF MUTE SWAN.

IN connexion with the observations recently published on the display of the Mute Swan (*Cygnus olor*) (*antea*, Vol. xl, pp. 130-134, 279, and Vol. xxxix, p. 182) it may be of interest to record that I have seen a Mute Swan dip its neck under water and then turn several complete forward somersaults in succession, after which, as a variant, it completely rolled over sideways. The bird then straightened up and swam on for 20-30 yards, then went through the same performance again and so on, repeating the somersaults and the roll every 30 yards or so until it swam out of sight. This took place in the month of October.

WILLIAM BAGGALEY.

[Similar behaviour has been recorded for Grey Lag Geese (*Anser anser*) (*antea*, Vol. xxxvii, p. 158 and Vol. xxxviii, p. 97), but so far as we are aware not for swans.—EDS.]

CANADA GOOSE DISTRACTING ATTENTION OF SWAN FROM YOUNG OF ANOTHER PAIR.

A PAIR of Canada Geese (*Branta c. canadensis*) with four young were swimming along the shore of a lake accompanied by a second pair of adults, which had been unsuccessful in breeding. A male Mute Swan (*Cygnus olor*) which had its family near by approached aggressively, at which the geese began to mount the bank. The swan began to clamber ashore only a yard or two behind. At this moment one of the pair which had no young dashed down the bank again and literally threw itself into the water beside the swan, which at once turned on it. Then the goose, by keeping just out of the swan's reach, led it a hundred yards or more, before taking off and returning to the party on the bank.

Though it is common for parent birds to lure an attacker away from their young, I have never seen a recorded instance of a bird's doing the same to protect the young of another pair.

J. R. M. TENNENT.

CALLS OF SHOVELER WITH YOUNG.

DURING the latter half of July, 1947, in South Uist, I had several opportunities of watching a Shoveler (*Spatula clypeata*) with a brood of two, three or four young. As a rule, the ducklings were hidden in the vegetation at the edge of a loch, and the duck was swimming, about 20 or more yards out from the bank. On seeing me, she began to swim back and forth, a few yards each way, keeping the same distance from the bank, and uttering continually a low grunt. If I remained long, or went nearer to the edge of the loch, the duck used a double call which sounded very like "go-back" with about equal emphasis on the two syllables. This became excited and more insistent if I approached the place where the young ones were hidden, and served to call them to the duck, for they pattered rapidly over the water to her, and they swam away together.

MARY HENDERSON.

SHOVELER NESTING IN ISLE OF MAN.

FOLLOWING the abnormally wet spring and early summer of 1947 a number of deep pools formed in the low-lying Ayre in the north of the Isle of Man. In these bred at least two pairs of Shovelers (*Spatula clypeata*), the first time this duck has been recorded as nesting in the island. The first nest with ten eggs was found on June 20th, and the second, which contained four eggs, a short distance away on the 29th of the same month. Both clutches hatched safely and nine well-grown young Shovelers were seen and handled at the end of July.

P. R. FOULKES-ROBERTS AND W. S. COWIN.

COMMON EIDER IN NORTHERN IRELAND.

ON August 16th, 1947, I saw a flock of six Common Eiders (*Somateria m. mollissima*) off Fair Head near Ballycastle, Co. Antrim, and on August 18th, 1947, a party of three off Rathlin Island. All appeared to be females or juveniles.

The Handbook describes the Common Eider as only occurring on Irish coasts outside Donegal from October onwards, or exceptionally September, and treats occurrences between June and August as very unusual.

RALPH STOKOE.

GANNET TAKING BREAD AT SEA.

ON the afternoon of July 18th, 1947, with the north-west coast of Hoy, Orkney Islands, several miles astern, the only birds in the immediate vicinity of the ship on which I was travelling to the Faeroes were a number of Herring-Gulls (*Larus a. argentatus*) and an adult Gannet (*Sula bassana*). One of the passengers was throwing scraps of bread over the steamer's rail for the Herring-Gulls when the Gannet approached, flying low, apparently intent on securing one of the pieces of bread. The bird plunged into the sea some five or six feet from the morsel it had selected, its dive continuing the line of its previous flight, and took and swallowed the bread on emerging. A few minutes later the bird repeated the manœuvre, again making a shallow dive from a low incoming flight and taking the bread from beneath; and on this occasion I observed that one or two gulls which had obviously intended to compete for the morsel sheered off immediately the Gannet immersed. I cannot find a reference to the Gannet feeding on scraps thrown overboard from ships, nor does this interesting manœuvre when competing against gulls appear to have been recorded. KENNETH WILLIAMSON.

FULMAR PETREL APPROPRIATING HERRING-GULL'S NEST.

ON June 9th, 1942, I saw a Fulmar Petrel (*Fulmarus g. glacialis*) sitting on a nest constructed fairly substantially of dry grasses placed on a ledge on the sea-cliffs of the Angus coast. After dislodging the bird, I saw that the nest contained one Fulmar's egg.

I revisited the cliff on June 25th and again put the bird off the nest. I was amazed to find that the nest now contained two typical eggs of the Herring-Gull (*Larus a. argentatus*) in addition to the Fulmar's egg.

According to *The Handbook*, the Fulmar uses no nesting materials with the possible exception of a few small stones, and as Herring-Gulls were nesting freely in the vicinity of the sitting Fulmar, I could only conclude that the latter had taken over a completed Herring-Gull's nest, but how the gull laid its two eggs after the Fulmar had begun incubation remains a mystery. Unfortunately, owing to war duties, I had to leave the district before I could pay the nest a further visit.

Although the nest itself was inaccessible, it could be seen from many angles from the cliff top, and I studied it at ranges of 25-30 feet with 7 x 50 Zeiss glasses.

It may be of interest to add that while watching Fulmar Petrels in the Isle of Lewis in 1941, I saw two of the birds sitting on disused Raven's nests on the cliffs, but owing to their extreme inaccessibility it could not be ascertained whether or not these contained eggs.

E. L. ROBERTS.

BEHAVIOUR OF BLACK-THROATED DIVER.

IN view of the note on the display of the Black-throated Diver (*Colymbus a. arcticus*) by J. Murray Thomson (*antea*, Vol. xl, p. 90), a record of somewhat similar behaviour in different circumstances may be of interest.

On June 27th, 1931, whilst I was handling a young Black-throated Diver by a loch in Sutherland, both the old birds approached to within a few yards, croaking repeatedly, dabbling their bills in the water, and one chasing the other. Then one splash-dived with a weird scream, and the other did likewise. On emerging from the water, one immediately surged through the water towards me, wings half-spread, breast raised, and neck extended forward. This performance was repeated twice or thrice, whilst I was examining the chick.

M. G. ROBINSON.

"INJURY-FEIGNING" OF COMMON SNIPE.

EARLY in the evening on July 7th, 1947, on the hills just south of Burnley, Lancashire, I flushed a Common Snipe (*Capella g. gallinago*) from a damp hollow in the moorland grass. The bird rose and at first flew rapidly, then checked in its flight and started to flutter feebly. The wings were held high over the back, and the body appeared tilted, so that the tail dragged along through the tops of the grasses. After continuing in this way for about 15 yards, the snipe alighted. Immediately, it began to call with a low, harsh, scouring note. On being flushed a second time, the snipe flew off silently and disappeared over a wall. I spent a few minutes searching for nest or chicks, but found nothing owing to the thickness of the vegetation.

About three hours later, passing over the same area, I disturbed the snipe once more. Uttering a harsh call again (quite different from the usual "scaap"), it flew straight away without any attempt at "injury-feigning," and very shortly I heard it "chipping" overhead. Again my search for eggs or young birds was unsuccessful. I did, however, suspect the presence of chicks rather than eggs, for the snipe, when flushed on the third occasion, rose from a place some little distance from its position earlier in the evening. Though I have never found a nest in the immediate vicinity, there is a marsh in an adjacent field which is a favourite breeding-haunt, and it is likely that the parent had brought the chicks from there on to the moorland.

According to *The Handbook*, "injury-feigning" of the Common Snipe is quite unusual, and there are no accounts which seem exactly similar to the above observations, though a harsh note is mentioned, probably the same as that which I heard.

K. G. SPENCER.

KENTISH PLOVER IN MIDDLESEX.

ON September 3rd, 1947, at a locality in Middlesex visited by migrant waders, I observed a party of small plover which, on examination proved to consist of one Ringed Plover (*Charadrius h. hiaticula*), two Little Ringed Plover (*Ch. dubius curonicus*), and a fourth bird which I at first took to be an immature Little Ringed Plover, since it approximated to the latter in size and had only a small, dusky brown pectoral patch on the breast. However, on approaching nearer I flushed the three smaller waders and then noticed that the bird in question had a thin white wing-bar and a much whiter tail than the Little Ringed; further the call note was a clear, sharp monosyllabic "wit wit" totally unlike the call of the former species. I watched the birds alight on arid ground and by careful stalking approached to about 12 yards. With the aid of binoculars and telescope I was then able to note the further characteristics of a Kentish Plover (*Leucopoliis a. alexandrinus*), completely black bill and dark greyish-black legs. The pectoral patch was a grey-brown, only slightly darker than the colouring of the wing-coverts and back. On close examination it was apparent that the colour of the back was even lighter than that of the Little Ringed, being of a more greyish shade. I was able to note that the head markings were greyish-brown, there being no black on the head. I took the bird to be an adult female. Further views of the bird in flight enabled me to observe that the whiter appearance of the tail was due to a broader area of white on the outer tail feathers.

R. J. RAINES.

BEHAVIOUR OF LAPWINGS WITH EGGS AND YOUNG.

DURING 1947, J. Ashbee and myself found some 30 nests of Lapwing (*Vanellus vanellus*) with eggs on the marshlands near Rye, Sussex.

On the numerous occasions that these nests were visited, it was found that, with one exception, the female invariably brooded the eggs. When disturbed suddenly, she would fly straight off the nest without calling, and stand some distance away, silently; when disturbed in a more leisurely way, the bird would run an appreciable distance from the nest, then, if necessary, take flight: but always the rule of silence was maintained.

The one instance wherein the female was not brooding was on a nest found on shingle (a little-used habitat in this locality) near Rye Harbour on June 3rd. There was no sign of the female, and the male, who was disturbed suddenly, flew up and began to circle us rapidly as we examined the eggs (which were almost certainly a second clutch), calling continually in distress; the bird behaved thus during the minute we spent at the nest. It was considered from this behaviour that the eggs were hatching; but it was 21 days later that the young appeared.

Since *The Handbook* infers that males take a definite part in incubation [the words are "both sexes take part but female takes greater part."—EDS.], it would seem that it is abnormal to find the male incubating only once in a total of at least 100 instances when we observed birds to leave the nest. Possibly the behaviour of the male after disturbance, in direct contrast to that of all the females, is also unusual.

On July 3rd, while estimating the ages of some young Lapwings whose hatching date we did not know, one of the young birds, about two weeks old, was picked up and then released. To the renewed cries of the adults, the young bird ran away immediately, then paused for a moment to thrust its bill once rapidly into the grass; after which it ran on, repeating the action every few yards. The same action has been observed in adults when evidently uneasy.

At Pett Level on May 21st, we disturbed a Lapwing with three half-fledged young. The young birds surprisingly began to run away, instead on continuing to crouch, whereupon the female flew down and began to flap her wings a few inches behind them, and was no doubt doing what she appeared to be doing—driving the young before her, away from danger, at as great a speed as possible.

This area of waste ground had been disc-harrowed a few days before, and we were surprised to see the many birds that nested still with young. Possibly the behaviour observed by us was successfully employed at the time of the harrowing, when all young were 2-3 weeks old; but we have never seen it previously.

J. C. WICKENS.

AVOCETS IN CAMBRIDGESHIRE AND NORTHAMPTONSHIRE.

At 18.00 hours G.M.T., on May 7th, 1947, as I entered the Cambridge Sewage Farm, two large black and white birds flew by at about 30 yards range, having probably risen from a neighbouring bed, and

without turning or circling continued on a steady south-easterly course (wind was E.S.E.), gradually mounting higher and higher, until out of sight. They were easily identifiable as Avocets (*Recurvirostra avosetta*) from the long upcurved bill and trailing legs, both apparently black, and the black markings on the top of the head, the end of the wings and the middle of the leading edge of the wings: the further black on the back was not seen, as the backs of the birds were never visible.

On June 12th and 13th I saw another Avocet on the farm. It was present throughout the 12th and left about 14.30 hours G.M.T. on the 13th.

P. E. PARRY.
ON June 15th, 1947, we flushed an Avocet (*Recurvirostra avosetta*) from a flooded bed on Northampton Sewage Farm. The bird flew right over our heads, and we were able to see all details of identification and the strongly upcurved bill, black forehead, crown, nape and primaries, long trailing grey legs.

Later we again observed this rare wader standing in water on another of the flooded beds. This time it allowed us to approach within 30 yards of it.

E. A. WARD, W. DRAGE AND K. A. HARDWICK.

INLAND BREEDING OF OYSTER-CATCHER IN SOUTH LANCASHIRE.

A PAIR of Oyster-catchers (*Hæmatopus ostralegus occidentalis*) successfully reared three young in 1947 at Thelwall Eye, a disused area for the deposit of mud dredged from the Manchester Ship Canal, which lies between that canal and the River Mersey. Mr. T. Waring, who first saw the birds on May 3rd in a field beside the river, watched them regularly at Thelwall Eye from that date, and on June 23rd I saw one of them myself. We made a combined search on July 12th, and found the two adults with two fully-fledged young, now well able to fly. Six days later Mr. Waring found and photographed the third young bird, which was as yet unable to fly. This locality is less than 13 miles from the centre of Manchester as the crow flies and much further upstream than the tidal-estuary where the bird was first found nesting by the Mersey near Eastham in May, 1936 (*antea*, Vol. xxx, p. 49) and where Mr. A. W. Boyd tells me he found a nest with three eggs on Frodsham Score in June, 1937.

A. R. SUMERFIELD.

CALL-NOTES OF WHISKERED TERN.

ON reading the notes in *The Handbook* on the voice of the Whiskered Tern (*Chlidonias hybrida*) I find no mention of the very characteristic sounds uttered by parties of this species when on the wing. These sounds are very striking and immediately draw attention to flocks of Whiskered Terns flying over water or passing overhead: they consist of two quite distinct notes uttered in regular alternation. The first is a thin note, not very tern-like, but rather passerine in

character; my notes render it as "keee" and its tone is not unlike that of the sound made by baby domestic chicks. The second note is deeper and more staccato, a harsh "kra"—perhaps the same as the "kyick" of *The Handbook*: it is sometimes prolonged to a more typically tern-like sound, which is well described by Naumann's "schreea." I recorded these flight-notes in autumn in the Camargue and they may be peculiar to a time of year when family parties of these birds consort together.

M. F. M. MEIKLEJOHN.

ARCTIC TERNS SCAVENGING.

THAT the Arctic Tern (*Sterna macrura*) may obtain its normal food otherwise than by fishing for it is not mentioned in *The Handbook*. Whilst staying on Mykines, in the Faeroe Islands, in early August of 1942 and 1943, and again whilst on Nolsoy in July of 1947, I noticed a number of Arctic Terns beating up and down the rock-strewn slopes in which great numbers of Puffins (*Fratercula arctica grabæ*) have their burrows. Now and then a bird would hover over a certain spot, descend, and rise with a small fish in its bill—one of a Puffin's catch carelessly dropped whilst entering the burrow. The terns were quite content with their gleaning—apparently a profitable occupation—and did not molest the incoming Puffins in any way, though the latter showed nervousness if a tern hovered too close. The majority of these terns, since they appeared to be feeding only for themselves, were perhaps non-breeding birds, but on a few occasions individuals did not swallow the prize, but carried it away.

KENNETH WILLIAMSON.

KITTIWAKES ON SUSSEX COAST IN SUMMER.

THE Kittiwake (*Rissa t. tridactyla*) has not of recent years been regarded as a summer visitor to the Sussex coast. J. Walpole-Bond, in his *History of Sussex Birds* (1938), wrote: "Since some untold date prior to 1891 Kittiwakes have only been visitors to the county between early September and at very latest mid-April, for I cannot imagine anyone siding with Borrer and Millais in their contention that the birds are with us the year through (in a non-nesting capacity, understood)." Since this was written records for Kittiwakes off Beachy Head on August 11th, 1943, and for June and July, 1944, have appeared in the *South-Eastern Bird Report*. During the spring and summer of 1947 the undersigned have systematically watched sections of the East Sussex coast for Kittiwakes with the following results:

I. EASTBOURNE DISTRICT.—A single Kittiwake in first summer plumage was seen by D.H.B. at Langney Point on May 13th, and the same or similar birds were seen there by him and D.D.H. on almost every visit throughout the rest of May, June and July. On June 1st, D.H.B. saw a single adult Kittiwake under Beachy Head. On June 17th and 18th, D.H.B. saw about 30 on the beach at

Langney Point. A similar number was seen there by D.D.H. on June 19th, and by June 21st, D.H.B. found that about 60 were present. Approximately a third of these birds were in full adult plumage. Both D.H.B. and D.D.H. observed display between birds in first summer plumage—the birds facing each other with open bills (showing the orange interior) and uttering the “kittiwake” note. Similar display was also observed by D.H.B. between adults. These birds were not seen again after the last date given above, only the single bird in first summer plumage mentioned above being found on later visits.

2. RYE HARBOUR.—A single bird in first summer plumage was seen by D.D.H. on May 17th, and May 22nd. On May 26th, D.H.B. and D.D.H. found a flock of about 90 Kittiwakes on the sands at the west side of the Harbour. Only six of these were in adult plumage. On the east side of the Harbour there were ten immatures and one adult. On May 29th, D.D.H. found about 50 on the east side of the Harbour (three of these being adults) and on May 31st, D.H.B. found about 130, nearly all immature, in the area. On June 11th, D.D.H. found only two immature birds there. Dr. N. F. Ticehurst has informed D.D.H. that he found an adult Kittiwake recently dead there on June 18th.

3. THE MIDRIPS.—On May 29th, D.D.H. found eight birds in first summer plumage on the beach near the Kent-Sussex boundary.

In almost all of the above cases the birds allowed a near approach and identification was quite certain. So far as the first summer birds were concerned a change of plumage was observed as the summer advanced. Of those seen during May a substantial number had the broad black band across the back of the neck, though many had already lost this and had only the diagonal black band across the wing. Few of the immatures seen during June and later retained the black band across the back of the neck and some had attained almost adult plumage so far as the wings were concerned but retained the blackish patch on the ear-coverts. The black ends (without “mirrors”) of the wings, darkish mantle, black legs, waxy-yellow bill and dark eye of the adults were also clearly seen. Where a number of the birds was seen together the “kittiwake” call was almost invariably heard.

It should be pointed out that although the presence of Kittiwakes on the Sussex coast in summer in such numbers has not before been recorded in recent years it is not altogether unexpected. There are a number of recent records for the same period from the west side of Dungeness (Kent), where a writer in the 1940 *South-Eastern Bird Report* considered them to be of annual occurrence during May. This year D.D.H. found about 40 immature Kittiwakes on West Beach, Dungeness on June 4th, and five immatures and an adult there on July 30th.

D. H. BROWN AND D. D. HARBER.

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REPORT ON THE IMMIGRATION OF WAXWINGS, WINTER, 1946-7

BY

JOHN GIBB.

(concluded from page 9).

The following is a detailed list of all Waxwings reported, set out under counties.

CHANNEL ISLES.—One in Guernsey, late December or early January (*per* B. K. Holmes).

CORNWALL.—Several in Scilly, Nov. 14th to Dec. 9th (Major A. A. Dorrien Smith in *Rep. Cornwall Bird Watching and Preservn. Soc.*)*.

SOMERSET.—One near Bath, Feb. 5th and two, Feb. 11th. One, Norton district, Feb. 5th-25th (H. Carr). Two, Bathampton, Feb. 16th (*per* B. King); one, Mar. 8th (G. Boyle). One, Walton St. Mary, Mar. 2nd (A. H. Marshall). Some in and around Taunton (*per* R. E. Williams).

WILTSHIRE.—Three, Marlborough, Dec. 17th (*per* J. H. Halliday). Ten, Ogbourne St. George, Jan. 2nd (F. E. Peach). One, outskirts of Salisbury, Feb. 17th (R. B. Hope Hall).

DORSET.—One near Puddletown, Dec. 26th (*per* J. H. Halliday). Two, Weymouth (*Dorset Daily Echo*, Feb. 12th). One, Blandford, Mar. 8th to Apr. 2nd (A. Bull, K. V. Elphinstone).

HAMPSHIRE.—Six at Alton, Nov. 2nd. Small numbers near Stockbridge, December-January (*per* R. E. Williams). Two on Farnborough airfield, Dec. 11th (T. Nonweiler). Five, Titchfield, sixteen at Portchester, Jan. 4th (H. E. Woods). One at Tidworth (G. M. de-las Rivas), six beside Basingstoke Canal, Jan. 25th, and one there, Mar. 8th (T. Nonweiler). One, Christchurch, Feb. 2nd (D. A. Taylor). Small numbers at Chandler's Ford, Eastleigh, Bishopstoke and Southampton throughout February; about twenty in Portswood, Feb. 5th; one, Southampton, Feb. 15th (*per* R. E. Williams, P. R. Saurce), another in early March (*Southampton Daily Echo*, Mar. 12th). Two or three, Portsmouth, Feb. 20th; two, Fareham, February (S. Sporne, D. Gunston). One, Cosham, end February (Mrs. M. E. Roberts).

SUSSEX.—Up to seven, Pett Level, Dec. 2nd-7th (N. F. Ticehurst, R. Cooke, A. D. Wilkinson). Two, Fairwarp, near Uckfield, Dec. 3rd (Ray White); one, Dec. 29th (A. A. M. Batchelor). One, first week December at Hastings (D. Oliver). Five on the Crumbles, Dec. 20th (D. D. Harber). Eight near Horsham, Dec. 25th; three, Jan. 31st; one, Feb. 7th (G. N. Slyfield). Seven at Pevensey, Dec. 27th (D. D. Harber). One at Dallington (W. F. Strickland) and ten at Beckley, Dec. 28th (*The Field*, Feb. 18th). Three near Ditchling Common, Jan. 19th for several days (B. W. Anderson). One, Pagham Beach, Jan. 29th (D. D. Harber). Several at Brighton (K. E. Pullen, B. Volk). A few at Haywards Heath, end January or early February (Mrs. J. Woolgar). Six near Three Bridges, Feb. 1st (I. J. F. Lees). Up to five at Hove, Feb. 6th-11th (H. Blakiston, L. P. Alder, Mrs. Darlon). Three at Pett, Feb. 22nd (R. Cooke). One killed by cat at Hastings (A. A. Wright). Five at Worthing, Feb. 27th (J. Shepperd).

KENT.—One at Sittingbourne, Nov. 11th (A. J. Staggs, F. L. Davis). Majority arrived Isle of Thanet first week December. About twenty, Margate, Dec. 10th-Jan. 3rd (L. C. Sargent); one seen there, Mar. 26th and Apr. 4th (R. G. Finnis). Up to twenty-seven, Hythe, from Dec. 16th and into January (Miss Forsaithe, G. E. Took, W. J. Taylor). Six at Sandwich, Dec. 19th-24th (D. M. Batchelor). Large flock arrived Ramsgate about Christmas Day; five in west Ramsgate and sixteen near Ellington Park, Dec. 26th; forty-five on Dec. 27th, twenty-two on 28th, sixteen on 30th, eight on Jan. 1st and fluctuating until the 31st, when there were sixteen: all near Ellington Park. Seventeen at Whitstable, Jan. 1st-16th (L. C. Sargent,

*Received too late for inclusion in map or tables.

V. and G. Lewis, T. Gullick). One, Chatham, Dec. 26th; two at Cliffe, 26th-29th (P. A. Rayfield, E. H. Gillham, Col. and Mrs. F. G. Highway, W. Beaton, R. F. W. Hunter, A. C. Tonkin). Several at Watlington, between Tonbridge and Maidstone; three, Tunbridge Wells, December (*per* G. N. Slyfield, M. Cullen). Small flocks at Sandwich, Benenden and Selling in December (T. C. Gregory). Several flocks, Whitstable, December (A. Collar). One, Tenterden, Jan. 1st, two, Mar. 2nd (A. Murray). Two, Bromley, Jan. 5th-17th (F. J. Holroyde). Six, Bexley Heath, Jan. 20th (F. J. Epps). Fifteen, north of Shipbourne, Jan. 25th (W. P. Fairweather). Fourteen, Faversham, and three, Gravesend, Jan. 27th (C. Featherstone, T. R. E. Southwood). About twelve near Canterbury, Feb. 5th, ten on 8th, three on 9th and one on 10th (T. H. Pares). Nine, Gillingham, Feb. 6th (G. B. Rimes), twelve, 23rd (M. Geeves). About six, near Ashford, Feb. 9th (R. G. Boucher). Six at West Wickham, Feb. 9th-10th (D. Sorrell), and between eight to fourteen, Feb. 16th-20th (M. T. and M. J. Owens). Five or six near Charing, Feb. (C. Brown, A. Edmunds). One, Chislehurst Common, Mar. 23rd (W. S. and F. E. Peach).

SURREY.—Two, Richmond Park, Dec. 1st for few days (D. A. Rawlence, G. N. Slyfield). One at Barnes Bridge, Dec. 23rd (K. V. Elphinstone). Twenty-five at Effingham, Dec. 31st; increased to at least thirty-two by Jan. 21st (A. E. Hubbard, G. Compton, S. Austin, R. C. Homes, H. F. Greenfield). Some in Horsley district, first week January (Miss E. J. Burt). Two at Ashted, Feb. 3rd (H. Hoffman). Seven, Surbiton, Feb. 11th-14th, five on 16th and 23rd; six, Mar. 10th (F. Monger, H. W. Boucher, *The Surrey Comet*, Mar. 1st). One, Mitcham, Feb. 24th (D. Bolton). About six at Redhill, Mar. 1st (Mrs. Burton). One dead, Shirley, Mar. 2nd (H. E. Pounds). Fifteen, Malden, end February or first week March (*The Surrey Comet*, Mar. 8th); about twelve, New Malden, Mar. 13th (R. Rawling).

ESSEX.—About six, Shoeburyness, Nov. 12th (*The Times*, Dec. 5th). Eight at Maldon, Nov. 26th, four on 27th and twelve on 28th (J. H. G. Peterkin). One at Ardleigh, Nov. 27th and Dec. 1st (*per* J. N. Mead). Two, Harwich, Dec. 16th-18th (J. R. Mallinson). Several, W. Mersea, Dec. 22nd-27th; fifteen, Dedham, Jan. 6th-8th; Clacton-on-Sea, Jan. 7th (*per* J. N. Mead, H. Drake). Two, Colchester, Dec. 25th, and a few Feb. 7th-9th (*per* J. N. Mead, G. A. Pyman). One shot near Halstead, Jan. 12th (R. Sparrow). Seen at Wivenhoe, Jan. 15th-16th; and at Walton-on-Naze, end of month (*per* J. N. Mead). About twenty, Leigh-on-Sea, Jan. 18th; one, Feb. 1st-4th, four on 7th and one on cliffs west of town, Feb. 14th; one, Feb. 26th-28th. Four, Southend-on-Sea, Jan. 30th, ten, Feb. 17th (*per* H. R. Tutt). Flock of about sixty, Langdon Hills on Jan. 30th (J. A. Hampton). Two, Braintree, Feb. 11th-12th (R. A. Moody); others, 15th-16th (*Essex Chronicle*). Four, Chelmsford, Feb. 14th and some days previously (G. A. Pyman); one dead, Mar. 5th (*The Field*, Apr. 5th). Small party at Witham in Feb. (*Essex Chronicle*). One dead at Upminster (J. D. Phillips). Three at Westcliff-on-Sea, Feb. 27th (*per* H. R. Tutt). Four, S. Woodford, Feb. 23rd, and six on 26th (B. A. A. Knight).

HERTFORDSHIRE.—Three near Tring, Jan. 19th (E. Gowlland), one on 30th (A. H. Bishop, *per* W. E. Glegg). Two, Royston, Jan. 25th-Feb. 1st; about ten, Feb. 4th-18th, one on 22nd (*per* H. A. Course). Single birds at Hitchin and Letchworth, Feb. 5th (*Herts. Express*), and at Stevenage about the 8th (*per* C. H. Cooke). One, Harpenden, Feb. 12th-15th (Miss J. M. Eastop, Dr. Williams). Seven at Watford, Feb. 9th, one on 12th (J. A. Smeed), about sixty on 19th and up to twenty on 20th (F. R. Lacey, A. C. Frost). Three at Berkhamstead, Feb. 15th (Miss A. M. Hawkins). One, Ashwell, Feb. 21st (W. H. Fordham). Flock over Rickmansworth station, Mar. 15th (R. V. Lewis). Two or three near St. Albans, Apr. 7th (Miss M. A. Finch).

MIDDLESEX.—Six on Horsendon Hill, Dec. 1st (F. G. Stanford). Two at Harrow, Dec. 18th (N. J. Hubbard), six on 22nd (M. E. Peover), nine on Jan. 2nd, increased to twelve on 3rd-8th (A. J. Bruce); thirteen on Feb. 19th, five on 26th, two parties of ten on 27th, thirteen on 28th; five on Mar. 2nd, five on 17th (J. Simpson, A. J. Wiggins, J. D. Paterson). Eleven at Eastcote,

Jan. 2nd (D. M. Williams). Up to twenty-two at Harlington, Jan. 6th; increase to thirty before dwindling to about six on Jan. 13th, five on 19th; one on Feb. 1st, four on 4th, one on 12th and three on Mar. 19th (H. A. Bilby, E. McEwen, R. S. R. Fitter, E. R. Parrinder, C. A. White). One at Finner, Jan. 8th (A. J. Bruce), one, Feb. 10th (M. J. Rayner). Several at Edmonton, Jan. 12th-26th (N. G. Hudson). Two at Staines, Feb. 1st (R. S. R. Fitter, E. R. Parrinder). Six in Edgware, Feb. 1st, three on 15th and five on Mar. 4th (F. C. Bromley, S. H. Singleton, Prof. E. H. Warmington). Four, Palmers Green, Feb. 12th (Mrs. T. J. Bickers). Two, Hampstead, Feb. 22nd (F. L. Stevens). Two at Ruislip, Feb. 23rd (C. A. White). One, Mill Hill East, Feb. 25th, and four on Mar. 2nd (Prof. E. H. Warmington). One, Perivale, first week March (G. Simpkins). Five in North London, Mar. 9th (F. Baker). Twenty for two days at Wembley, Mar. 6th (T. L. Bartlett), six on 9th (R. C. Allder), one on 15th; also in Sudbury (R. H. Ryall). Seven in Wealdstone, Mar. 12th, nine on 13th and three on 15th (J. Bailey). About twenty-four at Herne Hill, Mar. 29th, and about twenty, probably the same party, in Brixton later (P. A. D. Hollom). Two, Kenton, Mar. 31st (J. Allen). One found dying, St. John's Wood, Apr. 4th (C. K. McConnan).

BERKSHIRE.—One at Abingdon, Dec. 28th (*per* L. C. Sargent). One few miles north of Newbury, Feb. 1st-2nd (G. Brown, R. T. Foster).

OXFORDSHIRE.—Three at Boars Hill, Dec. 17th (M. L. Kay). Three at Eynsham, Dec. 18th (B. M. A. Chappell). Three, Oxford, Feb. 16th, four on 20th, one on 22nd; about six, first week March, and one on Mar. 23rd (*per* Miss K. Price, Councillor L. C. W. Phillips, W. Stobie, I. Price, H. Lousley). Three at Shilton, Feb. 22nd (*Country Life*, Mar. 7th).

BUCKINGHAMSHIRE.—Two at Colnbrook, Dec. 21st and three on 22nd (A. V. Tucker). Seen at Bletchley, Jan. 5th and 16th, one on 19th (M. F. Whiteley). Four, Wendover, Feb. 14th (F. Sanders).

SUFFOLK.—Nine, Oulton Broad, Nov. 17th. One, Hopton, Dec. 6th, and four on Jan. 2nd (*per* E. W. C. Jenner). Seven at Bury St. Edmunds, Dec. 25th (D. V. Butt). About forty at Leiston, end December (*Country Life*, Mar. 7th). One, Hitcham, Jan. 5th; several, Halesworth, Jan. 7th. Twenty-one in Ipswich, Jan. 10th and many there from 21st-24th (H. Drake); also one, Feb. 1st-2nd, about five on 6th, two or three on 16th, and four on 17th (Miss L. Riches); one, Mar. 7th-9th, four on 14th (T. R. Oliver). Small party at Gunton, Jan. 19th. One at Southwold, Jan. 31st. Seven at Lowestoft, Feb. 27th*. Some remaining at Oulton Broad, Mar. 23rd (*per* E. W. C. Jenner).

NORFOLK.—Eleven at Cley on Nov. 10th; a small party at Wheatfen, Nov. 21st; large numbers present by end of month. Also fifty reported at Claxton (*Wild Bird Protection in Norfolk*, 1946)*. Three at Salthouse Heath, Dec. 21st (R. Hewson). Small party at Caister-on-Sea, Jan. 19th (*per* E. W. C. Jenner).

CAMBRIDGESHIRE.—Two at Barton, Feb. 6th for over a week. Two in Cambridge, Feb. 7th-23rd. At least thirty, Coldhams Common, second week February (R. A. Hinde, J. Wilson).

BEDFORDSHIRE.—Several, Eaton Socon, Feb. 7th (C. F. Tebbutt). Four at Luton, Feb. 13th, six on 23rd, two on 26th (*per* W. E. Glegg, Mrs. H. M. McAdam, Miss B. M. Clutten, J. Hornett).

NORTHAMPTONSHIRE.—Four at Kingsthorpe, Dec. 15th (P. Lawrence, P. Westley). Seven at Brashley, end December (*Country Life*, Jan. 17th). Two at Wakerley, Jan. 16th. One at Corby, Jan. 23rd. One at Kettering, Feb. 12th, twenty on 16th (*per* F. H. Burton).

GLOUCESTERSHIRE.—Five in Westbury Park, Jan. 4th and up to eight on subsequent days until Feb. 3rd; again Feb. 13th-17th (R. P. Gait, A. C. Leach, W. R. Taylor). Five on Clifton Downs, Feb. 4th (J. D. Wellings). Three near Westbury-on-Trym, and near Horfield, Feb. 5th (G. H. Mazey, R. P. Gait). Four, Feb. 6th-10th, at Stoke Bishop (J. D. Wellings, J. B. Henderson). Four at Minchinhampton, Feb. 8th (H. C. Playne). One at Cheltenham, Feb. 20th (L. W. Hayward). One at Filton, Feb. 23rd (C. E. Taylor). One at Ampney St. Peter, Feb. 24th (P. Cowen).

*Received too late for inclusion in map or tables.

MONMOUTHSHIRE.—Up to six near Newport, Feb. 12th to end of month (E. Hailey).*

HEREFORDSHIRE.—One in outskirts of Hereford, Jan. 4th (Miss Marsh), another on or about 24th; one down chimney, Feb. 10th (C. W. Walker). Two at Aymestrey, Jan. 27th (Mrs. Gardner).

WORCESTERSHIRE.—Three at Lower Bittell Reservoir, Dec. 30th, one on 31st (Miss E. Butler, M. P. Bishop, C. A. Norris, D. R. Wheeler). One at Worcester, Feb. 1st-9th (A. J. Harthan). Up to nine at Malvern, Feb. 2nd-5th (D. M. Batchleor).

WARWICKSHIRE.—Three at Coventry, Dec. 29th (A. H. White); one, Mar. 3rd and two on 13th. Four at Hall Green, Birmingham, Jan. 10th-11th. Three, Stratford-on-Avon, for nearly two weeks in early February; one, Mar. 14th (*per* C. A. Norris, H. N. Brealey). One at Leamington Spa, Feb. 22nd, and others reported earlier in local press (D. G. Chandler).

STAFFORDSHIRE.—One, mile north of Eccleshall, Jan. 19th (P. S. Waters).

LINCOLNSHIRE.—Flock of about thirty, Gainsborough, Dec. 10th-20th, 24th; another flock of about ten on 20th, and single bird elsewhere, 26th (A. E. Wright, W. Greaves). One near Lincoln about Dec. 21st (W. Heaths).

LEICESTERSHIRE.—One, Leicester, Feb. 5th and 21st; two on 26th, one on 27th, one Mar. 2nd (D. M. Bryce, L. H. Lavis, N. Bennet, F. A. Bak). Three, Oadby, Feb. 15th (J. L. Petcher). One, Evington Village, Feb. 27th (F. A. Bak).

NOTTINGHAMSHIRE.—Ten, Thoresby, Nov. 23rd, sixteen on 30th (N. Harwood, R. J. and T. W. Raines). Eleven, Colwick, Dec. 17th, at least twenty on 20th; scattered birds within two miles in January-February (F. Hind, R. J. Raines, J. Staton). Six, Keyworth, Jan. 26th (A. M. W. Oldershaw). One near Newark, Feb. 7th (J. Wilkins).

DERBYSHIRE.—One at Spondon, Oct. 26th (P. E. Merrin). One at Idridgehay, another at Great Longstone, end December (*per* W. K. Marshall). Two at Chesterfield, Feb. 15th, and three on 16th (N. Harwood).

CHESHIRE.—One at Romiley, Dec. 5th (Mrs. Hickman). One near Crewe, Dec. 27th (J. Southern). Four near Chester, Jan. 3rd (B. L. Heighway). One near Stockton Heath, one at Disley, Jan. 7th (T. Gandy, Mrs. A. W. Bardsley). Thirteen at Macclesfield, Jan. 19th-20th (G. R. Coope). One, Acton Bridge, Jan. 26th (H. Bostock). Two at Bowden, Mar. 1st-2nd (A. W. Boyd, K. G. Spencer, J. Southern). One at Wilmslow, Mar. 10th-11th (L. P. Samuels).

LANCASHIRE.—About eight at Newby Bridge, Nov. 16th. About twenty-five at Cockerham, Dec. 1st (K. R. Burgess, S. Moorhouse). Two near St. Annes, Dec. 11th (J. N. Bate). One over Burnley, Dec. 19th (D. Leaver); two, Jan. 25th and one, Feb. 27th (P. A. Clancey). A flock of about one hundred birds arrived at Carnforth about Dec. 13th; two flocks there of about 150 and 200 by Dec. 23rd-Jan. 4th; about one hundred, Jan. 4th-8th, two on 12th; only two left in original locality by Feb. 16th, but small flocks scattered in vicinity on Feb. 19th; one there on Feb. 23rd (R. W. Jackson, A. J. Murray, J. A. G. Barnes, S. Moorhouse, K. R. Burgess). About twenty-five, Bolton-le-Sands, Dec. 22nd, one or two Feb. 7th; about thirty at Hest Bank, Dec. 30th (K. R. Burgess, S. McLaren, R. A. H. Coombes). A flock of about twenty-five arrived Clitheroe at end of December; thirty to forty there, Jan. 4th; only one, 8th, and about eight on 10th (A. Richards, D. Tattersall). Seventy to eighty at Brungerley Bridge, near Clitheroe, from mid-January to end February (T. Robinson, J. Martin). Two, Audenshaw, Feb. 7th, one on 17th (D. E. Jordan). Eight at Parbold in early February (C. H. Stobart). Up to five at Barrow-in-Furness, Feb. 8th-21st, two on 22nd (W. Dodd). About fifty at Higher Newton in early February (*per* H. S. Millard). One near Blackpool, Feb. 11th, 18th (R. M. Band). Four near Preston, Feb. 11th (N. Kenworthy). One in outskirts of Liverpool, Feb. 12th (J. S. Taylor). One, Flixton, Feb.

*Received too late for inclusion in map or tables.

16th (W. E. Barber). Small party at Carleton, Feb. 20th (J. Carter). About six, Grange-over-Sands, Feb. 22nd and two on Mar. 9th (H. B. Turney). Reported at Nibthwaite (L. A. Cowcill).

EAST RIDING YORKSHIRE.—One dead, Bridlington, before Nov. 15th (*per* J. K. Adams). One at Kellythorpe, Nov. 19th, two Dec. 15th (J. H. Barrett). Ten at Tweendykes, Hull, on Dec. 2nd; increased to thirty by 9th, still present 14th (J. Lord, G. H. Ainsworth); ninety-five, Dec. 15th (*Hull Daily Mail*, Jan. 7th); fifty-six, Dec. 22nd, 31st; seven elsewhere in Hull, 31st; considerable numbers throughout January; about twenty until Jan. 6th (B. N. Reckitt, J. H. Barrett, C. F. Procter, Miss G. Ramsdale, Mr. Pentith, G. H. Ainsworth, J. Lord, Miss M. Hall). Small flocks also from Sutton-on-Hull, Beverley, Hedon, Dunswell, Wawne and Swanland (C. F. Procter). Two at Driffield, Dec. 15th (J. H. Barrett). Two at Wassand, Dec. 25th (E. Crackles). Four, Aldborough and four at Spurn, Dec. 28th (J. H. Barrett, G. H. Ainsworth).

WEST RIDING YORKSHIRE.—One near Tadcaster, Nov. 19th (F. S. Chapman). One at High Royd, Nov. 29th (G. R. Edwards). Fifteen near Boston Spa, Dec. 1st (Mrs. P. V. Upton). Six, Swillington Ing, Dec. 5th (J. K. Wainwright). About twenty, Skipton-Grassington road, Dec. 15th (C. Lees). Two, Knaresborough, Dec. 25th (R. Hewson). One in Halifax, November-December (W. Greaves). In Wharfedale: seven at Menston, Jan. 3rd, nine on 5th (V. Huddleston, W. F. Fearnley); seven at Burley, Jan. 10th, 19th (A. E. Pullan, W. F. Fearnley); five at Weeton, about Jan. 25th and Feb. 24th (A. Haigh-Lumby, W. F. Fearnley). One, Fairburn, Jan. 12th (S. M. Barras-Smith). One in Sheffield, Jan. 20th-21st (B. D. Copley, A. E. Fields, R. D. Vaughan). A few singles near Ripon, Jan. 26th-28th (H. G. Brownlow).

NORTH RIDING YORKSHIRE.—One at Saltburn-by-Sea, Nov. 7th (D. Carr). Twelve, Scarborough, Nov. 9th-10th; six, Dec. 15th; six, Jan. 2nd (O. C. Hill, A. J. Wallis, A. B. Walker). One near Northallerton, Nov. 10th (J. Hyatt). About thirty arrived at Albert Park, Middlesborough, on Nov. 13th; increased to about one hundred in the month; decreased from end November and few there by mid-December, spasmodically later; about thirty, Jan. 2nd, about twenty-four on 27th. About fifty at Marton, near Middlesborough, Nov. 16th. About sixty at Nunthorpe, Nov. 20th, and later at least two hundred in same area where some remained for several weeks (*per* O. C. Hill, J. Ewbank). Eight in Thornton Dale, Nov. 22nd and two, Dec. 16th; one, Ellerburne, Nov. 22nd (R. M. Garnett, J. T. Green). Six at Ampleforth, Nov. 27th (W. H. W. Inman). About sixteen off the sea a mile north of Whitby, Dec. 1st. Four over Whitby, Dec. 26th; sixteen, Jan. 17th (A. B. Walker). Two near York, Nov. 16th-Dec. 25th; five on 26th (E. M. Rutter, E. W. Taylor). Two flocks of which largest about sixty birds, Wensleydale, Dec. 15th and into 1947 (Lord Bolton). About fifty at Whitwell-on-the-Hill, near York, on Dec. 17th (F. R. Wormald). Two near Pickering, Dec. 8th; five on 30th (Miss S. Hall). Three, Grinton, Dec. 25th (G. R. Lunn). Two at Harome throughout December (A. Gordon). Twelve at Thirsk, Dec. 29th and previous days (B. Foggitt). One, Haxby, Dec. 29th (F. Jefferson). Thirty near Wrelton, three at Sinnington, Dec. 30th (W. B. Alexander, R. M. Garnett). Six at Newby, Jan. 6th and twenty at Hatton Rudby, twelve near Northallerton, 7th (J. P. Utley). Over fifty, Eskdale, Jan. 4th; about twenty at Little Beck, Jan. 12th (A. B. Walker). Fourteen, Helmsley, Jan. 27th (R. P. Maclean). Six at Catterick, Feb. 10th; three flying east, Mar. 13th; one or two flying north-east, Apr. 17th (S. Sporne).

DURHAM.—Four at Crookfoot, Nov. 9th. A dozen at a favourite haunt of other years near Rowlands Gill, Nov. 10th; increased to sixty-seven by Dec. 7th (*per* G. W. Temperley). Four near West Hartlepool, Nov. 16th, Dec. 16th, 24th (R. Kell). Fourteen at Ravensworth Park, Dec. 1st (*per* G. W. Temperley), increased to about three hundred, Dec. 5th (J. M. Denton). About thirty-five, later increasing to sixty, at Swalwell, Dec. 7th. A number of scattered birds in Darlington, Feb. 9th-18th. Some at Norton-on-Tees and Middleton St. George in early February; one, Darlington, Feb. 9th, 15th-16th (*per* R. O. Varley, *per* G. W. Temperley). One, Stockton-on-Tees, Feb. 11th, two on 15th (R. Ward).

NORTHUMBERLAND.—Four, Beadnell, Nov. 2nd. Forty near Berwick, Nov. 9th. Ten, Stocksfield, Nov. 13th. Flocks of ten, fifteen and about seventy between Berwick and Budle Bay, Nov. 16th. About twenty, Hexham, Nov. 17th and Feb. 2nd, forty on 6th. Fifty on river Aln, three miles inland, Nov. 19th. Twenty near Corbridge and others near Fourstones, Nov. 24th. About one hundred between Hexham and Corbridge, Dec. 8th. About twenty at Wooler, end November. About six in centre of Newcastle-upon-Tyne, Dec. 3rd-4th. Scattered birds later near Newcastle and South Shields; last reported, Mar. 3rd. Thirteen near Bilton, Dec. 7th, two on 12th, one on 14th, two on Jan. 18th. Seven near Broomhill, Dec. 28th. Eight at Haydon Bridge, Jan. 25th (*per* G. W. Temperley, H. Tully, T. F. Hird, B. M. Oliver, F. Brady, W. Johnson).

WESTMORLAND.—Flock of about one hundred at Kendal on Nov. 6th, 9th; about twenty-five arrived there, Jan. 7th; increased to thirty-nine by 10th; fresh arrivals, Feb. 15th (*per* S. Moorhouse, K. R. Burgess, R. E. Hayes, H. F. Alsop, Miss S. McLaren, H. B. Turner, E. J. M. Buxton, V. Belfield). About fifty, Beetham, Dec. 1st. One near Milnthorpe, Dec. 8th; about fifty there in late December, and one or more, Feb. 16th (*per* K. R. Burgess, *per* S. Moorhouse, A. J. Murray). One at Arnside, Dec. 8th, two on 24th; up to sixteen, Feb. 4th-21st (H. Chawner, H. B. Turney); one there until Mar. 29th (J. A. G. Barnes). Three or four near Brothers Water, Dec. 30th (R. Hewson). Two at Crook for several evenings, May 15th (S. McLaren).

CUMBERLAND.—One near Maryport, Nov. 9th, twenty-five on 10th; one on Jan. 18th, two on 20th; one, Feb. 7th and one, Mar. 8th (J. Nicholson, Miss F. Irving, J. Martin, *per* R. Stokoe). A flock of about one hundred birds at Cockermouth for several days until about Nov. 11th, when one was left (A. Barton, M. Bell). Eight, Upperby, Nov. 29th (*per* K. R. Burgess). About thirty at Aspatria, Dec. 4th (Miss A. Teasdale, *per* R. Stokoe). About one hundred at Carlisle, Dec. 20th (*per* K. R. Burgess). Three at Cumdivock, Dec. 20th; twelve, Jan. 7th; twenty, Feb. 12th (R. H. Brown). Two at Grune Point, Feb. 8th (R. Stokoe, J. Hardingham). Twenty at Hutton-in-the-Forest, Feb. 10th (R. H. Brown). Two or more at Crosthwaite, Feb. 15th (H. S. Millard).

ISLE OF MAN.—One dead at Sulby, Nov. 19th. Odd birds seen from about Feb. 12th at Ramsey; nine on Feb. 19th, four on 20th (*per* W. S. Cowin).

WALES.

GLAMORGAN.—Four in Cardiff, Jan. 19th; one, Feb. 25th (B. Campbell, L. W. A. Cox).

PEMBROKESHIRE.—One in St. Ishmaels, Milford Haven, Nov. 22nd (T. A. W. Davis).

CARNARVON.—Two, Bangor, Feb. 13th-17th (F. L. Miller, I. Tully).

DENBIGH.—One at Llangollen, Apr. 12th (Miss J. Cashmore).

IRELAND.

Co. DOWN.—Three at Holywood, Feb. 5th; two on 7th (R. H. Prestwich).

Co. ANTRIM.—At least one hundred altogether in three flocks, Dec. 24th (J. Scott). Four or more at Ballymena, Dec. 25th; two there on Mar. 23rd, and one on Apr. 3rd. Ten at Larne, near Belfast, mid-December. Four near Antrim, end December; thirty-four, Jan. 13th (F. McKinney). At least six near Lisburn, Jan 23rd-24th; ten, Feb. 20th, fifteen, 22nd; one, Mar. 27th, and one, Apr. 15th (J. A. Benington). One in suburbs of Belfast, Feb. 9th (J. L. Russell); several, Feb. 22nd-23rd (*Country Life*, Apr. 4th).

Co. WICKLOW.—One found dead near Bray, Dec. 12th (P. G. Kennedy).

Co. DUBLIN.—Eight from Dec. 14th-15th in Dunleary; seven by Jan. 10th; two on 18th and 19th. One near Clondalkin, Dec. 25th. Three in Dublin, Jan. 27th, five on 28th; last seen Feb. 7th when there were two (*per* P. G. Kennedy). Three in another locality in Dublin, Feb. 3rd (I. Goodbody).

Co. DONEGAL.—Two at Portsalon, Oct. 20th (A. F. Morrison).

Co. MAYO.—One at Mallaranny, Dec. 23rd (R. F. Rutledge).*

*Received too late for inclusion in map or tables.

SCOTLAND.

The Misses E. V. Baxter and L. J. Rintoul, compilers of the report *The Migration of Waxwings into Scotland*, 1946, for the Scottish Ornithologists' Club, have kindly provided us with the following brief summary.

"The immigration of Waxwings into Scotland in 1946 was of great dimensions, about 6,000 were recorded and there were doubtless many more. The period in which most birds arrived was from November 11th to 23rd, chiefly from the 14th onwards. The great bulk of the migration struck the east coast, with special intensity between Inverness-shire and Berwickshire. The moors and forests restricted their distribution; the records show a very marked line to the south-west down the Great Glen; a lesser one up the Spey Valley; another from the north-east coast (Aberdeen and Kincardine) round the foothills of the Grampians to the west, and a very strong one by way of Angus, Fife and the Lothians to the Clyde Valley, with stragglers to Dumfries, Kirkcudbright and Wigtown. Orkney and Shetland appear only to have been touched by the northern wing of the movement, as, though they were present in many parts of the islands only what is described as 'a sprinkling' is recorded. Few carried over to the west coast north of Fort William or to the Western Isles. Considerable numbers penetrated to the centres of the cities, flocks of sixty and one hundred being seen in Glasgow and flocks of from two hundred to three hundred elsewhere. After a period during which they moved about the country, the flocks began to dwindle and get steadily less, though stragglers lingered as late as mid-April."

The few records we have received from Scotland which are not included in the Scottish report, but which seem to add materially to it, are given below.

SUTHERLAND.—Nine near Tongue, Dec. 1st; five on 3rd (D. Murray).

ANGUS.—Eight at Montrose, south Esk basin, Nov. 10th (C. E. Bruce-Gardyne).

PERTH.—A number at Dunkeld, Nov. 28th for two days (Miss R. Upton). One at Strathtay, Dec. 1st, two on 6th (J. M. Campbell).

DUMBARTON.—About twenty-four, Milngavie, Nov. 21st; at least fifty, 29th; a very large flock on Dec. 3rd (Miss P. S. Allan).

MIDLOTHIAN.—About thirty-five near Newtongrange, Dec. 22nd; one on 24th (C. K. Mylne).

ADDENDUM.

(received too late for inclusion in text).

under WALES (p. 39) add:—

ANGLESEY.—Flock of eighteen to twenty, Malltraeth Marsh area on or about Jan. 30th and for less than a week afterwards (T. G. Walker).

THE LITTLE RINGED PLOVER IN THE LONDON AREA IN 1947

BY

E. R. PARRINDER.

IN 1947 Little Ringed Plovers (*Charadrius dubius curonicus*) bred in the London Area for the fourth year in succession, and there was a remarkable increase in numbers. Eight nests were found and four other broods seen. Because of the possibility that at least two pairs changed their sites after disturbance the exact number present is unknown, but there were certainly eleven and possibly fourteen pairs. Although the majority of the birds were again in Middlesex there was an extension of range to three other counties, and first breeding records were obtained for Essex (four pairs), Kent and Berkshire (one pair each). It is probable that the apparent sudden increase, from four pairs in 1946 to a minimum of eleven pairs in 1947, is in part due to a lack of observation in previous years. The Essex site, in particular, was visited for the first time in 1947, when four well-established pairs were found, and it seems likely that Little Ringed Plovers may have bred at this site, unobserved, for some years. It is curious that the known breeding range of the species in Britain is, so far, restricted to Tring (where it bred in 1938 and 1944) and the London Area (where it has bred annually since 1944) and one wonders how far this restriction is due to a lack of observation in other suitable places. In the London Area the gravel pits, of which there are nearly two hundred, are the chief habitat, and the essential factors appear to be a reasonably undisturbed flat area of gravel, shingle or stony soil for nesting, in close association with water with a sand or mud edge, for feeding. These conditions are usually found in pits which are being worked, but the state of a pit may change rapidly and it may become unsuitable in the following year, or even in the same season, by a change in the water level or by becoming overgrown.

The brief account which follows has been condensed from notes supplied by the following observers:—K. Allsop, C. B. Ashby, S. Austin, J. A. Bailey, J. F. Burton, N. W. Cusa, R. daCunha, J. Field, J. M. Fisher, R. S. R. Fitter, A. C. Fraser, D. Goodwin, P. J. Hardiman, Miss G. M. Harrison, R. W. Hayman, E. O. Höhn, P. A. D. Hollom, F. J. Holroyde, R. B. Holroyde, R. C. Homes, Sir Cyril Hurcomb, Mrs. H. Rait Kerr, K. P. Keywood, Miss E. McEwen, P. Marler, D. J. May, W. D. Melliush, F. J. L. Mitchell, D. A. T. Morgan, C. A. Norris, E. R. Parrinder, E. W. Pearce, E. G. Pedler, B. A. Richards, H. W. Rudd, W. G. Teagle, C. A. White, A. Whitaker, J. S. Wightman, W. A. Wright.

MIDDLESEX.

LOCALITY "A": This site, where Little Ringed Plovers nested in 1945 and 1946, was not used this year—the water level was higher than in previous years and there was no suitable feeding area.

LOCALITY "B": Two Little Ringed Plovers were seen here on April 25th—the earliest recorded occurrence in the British Isles. They were by a small pool which had been a favourite haunt in 1946 (E.R.P.). On May 10th a clutch of four eggs was found by the same pool (R.C.H.) and on May 24th the adults were brooding four chicks, almost certainly hatched that day (J.S.W.). The site was not visited again until June 11th, when E.O.H. was unable to find either adults or young. On June 15th, however, an adult was seen in a corner of the pit, away from the nesting site; on being disturbed it flew up to a good height and away in the direction of LOCALITY "D" (*q.v.*) (E.W.P.). No Little Ringed Plovers were seen on subsequent visits.

LOCALITY "C": Three pairs are known to have bred at this locality, the vast area of gravel and shallow pools where at least two pairs were seen in 1946. On May 1st a pair was in occupation of territory close to one of the pools (J.M.F.). Not more than three birds were seen in May, but on June 12th E. McE. saw at least eight. The first proof of breeding was obtained on June 14th, when E.R.P. found an adult tending three chicks at a previously unvisited corner of the site. Later the same day the four chicks of a second pair were found, all crouching together and obviously not long hatched (C.H., C.A.N., E.R.P.). On June 22nd the nest of the third pair was found containing three eggs (K.A.), and by June 24th the clutch had increased to four (P.M.). On July 16th (approximately 23 days after the completion of the clutch) E.R.P. found a chick crouching in the nest—the three remaining eggs had hatched out by the next day (J.F.). Other observers confirmed the existence of three pairs; there is a possibility that four pairs were about, but the presence of fledged young made confirmation difficult. Twelve birds were seen on August 2nd (K.P.K.) and adults and young were seen throughout August and early September, but the size of the area made it impossible to follow the history of any particular pair or to be certain of total numbers. The last definite observation at this site was on September 13th, when two were seen (D.G.), but five out of a flock of twelve Ringed Plovers seen in flight near the site on September 21st were considered to be *dubius* (J.A.B.). As in 1946 birds were seen at the extreme ends of the season at a sewage farm two miles away—one on May 2nd and 3rd (J.A.B. *et al.*) and two on September 10th (C.A.W.).

An interesting feature at this site was the unusual number of Ringed Plovers (*Charadrius h. hiaticula*) seen on passage—one to five were noted on a total of seventeen dates in each month from April to September. On several occasions the two species were seen together, and on June 22nd, while E.R.P. was searching for young Little Ringed Plovers, a Ringed Plover circled overhead calling—the adult *dubius* was on the ground near by, also calling.

LOCALITY "D": On May 27th A.W. visited a gravel pit about a mile from LOCALITY "B" and found two Little Ringed Plovers. On May 29th at least two, possibly three, were seen and three adults were certainly present on the next visit, June 6th, when there was persistent calling and a good deal of display and apparent hostility (A.W.). Three adults were again seen on June 13th (A.W.) and July 7th, when one bird behaved as if there were young about, but none was seen (E.R.P., A.W.). On July 12th four adults were present and were seen in flight together; on the ground they separated into two pairs. One pair showed anxiety and at length two juveniles capable of flight were seen (C.B.A., E.R.P.). Although there is no proof it seems probable that the young were bred at this pit. The second pair, which seemed to be intruders, may have come from LOCALITY "B", where the young disappeared after hatching out on May 24th.

LOCALITY "E": This site was first visited on June 15th, when two Little Ringed Plovers were seen (G.M.H., W.G.T.). A nest was found on June 22nd; it held four eggs and was placed in the centre of a shingle bar which nearly bisects one of the main waters of the pit (E.R.P.). The pit was being worked and at the weekends was frequented by fishermen—on June 29th, a warm day fortunately, the adults were kept off the nest for more than two hours. On July 8th one of the adults was brooding three chicks; the fourth egg had not hatched. Two of the young were caught on July 16th and ringed; the egg was still in the nest and was removed (W.G.T.). The pit was last visited on July 27th, when one adult was seen and from its behaviour the young were judged to be still about, although they were not found (B.A.R.).

LOCALITY "F": At this locality, a gravel pit close to LOCALITY "C", one to four Little Ringed Plovers were seen on a number of occasions from May 14th to June 1st. There was no evidence of nesting and birds were seen flying to and from the direction of "C", so it seems likely that the site was used as a feeding ground only.

ESSEX.

On May 24th H. W. Rudd and W. A. Wright visited a large area of gravel and shallow pools, which had not been looked at in previous years and satisfactorily identified two Little Ringed Plovers—the first record for Essex. On May 31st at least five birds were seen and two pairs were displaying (S.A., D.A.T.M., H.W.R.). Seven birds were seen on June 3rd and S. Austin and J. P. Hardiman found a nest with four eggs. On June 7th C.B.A. and E.R.P. found a second nest fifty yards from the first, also containing four eggs, and a third pair, some four hundred yards away, tending two small young. On June 12th the eggs of pair (1) were beginning to crack and three young had hatched out in the nest of pair (2). Only one bird was seen of pair (3), but a fourth pair was discovered in another part of the site and the nest found—it held four eggs, on

the point of hatching (E.R.P., H.W.R.). All the nests were empty when the site was next visited, on June 16th. On June 21st an intruding Ringed Plover was chased off, and "injury-feigning" was observed on June 28th (W.A.W.). Little Ringed Plovers were last seen at this site on July 26th, when eleven were identified with certainty out of a flock of fourteen birds (H.W.R., W.A.W.). The site was not visited again until August 24th, when all the shallow pools had dried up and no Little Ringed Plovers were seen (E.R.P., W.A.W.).

KENT.

The first record of the breeding of the Little Ringed Plover in Kent was obtained on June 20th, when C. B. Ashby and F. J. Holroyde identified two birds with certainty at a gravel pit and watched one of them on to a nest, which was found to contain four eggs. The site had been visited previously by J. F. Burton on May 27th and by F.J.H. on June 15th—on each occasion a wader was seen which was presumably a Little Ringed Plover, but which was not at the time identified. Subsequent to the finding of the nest the site was visited on June 22nd, 24th and 28th and on July 1st. On July 3rd R.B.H. found the nest empty, the adults were present and obviously agitated, but as there were people about no search was made for the young. Two young were seen, however, on July 5th when the adults were again very noisy and "injury-feigning" was seen three times (F.J.H.). The next day the adults were again noisy and "injury-feigning" was performed, but only one chick was seen. F.J.H. next visited the site on July 13th, when neither adults nor young could be found, and they were not seen on three subsequent visits in July. The complete disappearance of the parents as well as of the chicks remains a mystery; the chicks may have been killed by some predator—Kestrels (*Falco t. tinnunculus*) had been seen about the pit on several occasions. On August 4th, however, J.F.B. saw a bird (satisfactorily identified as *dubius*) in juvenile plumage, but it was capable of flight and there was no proof that it was one of the missing young.

BERKSHIRE.

The first occurrence at this site was on April 26th, when a single bird was seen (R.S.R.F.). On May 31st, J. Field, A. C. Fraser and other members of a local Natural History Society saw two birds, both identified as Little Ringed Plovers. One of the birds ran along the rough stony ground and squatted down within forty yards of the observers. When they approached the spot they found four eggs, three together in a scrape and the fourth nearly two feet away. The "displaced" egg was put with the others and all four were there the next day, when the adults were watched for some time. On June 4th, however, the area was found to have been ploughed up and there was no trace of the eggs and no Little

Ringed Plovers were seen on this or on subsequent visits (J.F., A.C.F.). Not seen again until July 18th, when D.J.M. found two, possibly three, present; two seen again on July 20th, and on 23rd four birds were there. Two seen on July 29th and one last bird alone on August 8th. These birds were seen also by A. Manning and J. O. Owens.

SUMMARY.

There were 11-14 pairs of Little Ringed Plovers in the London Area in 1947—the fourth successive year in which they have bred within twenty miles of St. Paul's Cathedral. Eight nests were found and there was evidence of four other broods. Breeding took place in at least three, probably four, localities in Middlesex and at one each in Essex, Kent and Berkshire. The last three are new county breeding records, but it seems likely that Little Ringed Plovers have bred unobserved, in Essex at least, in previous years. Birds are known to have reached the flight stage at the Essex and at one of the Middlesex sites, but the exact number is unknown. One nest was disturbed by ploughing and the young of two other pairs apparently came to grief.

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BLACK REDSTARTS ON PETT LEVEL, EAST SUSSEX

BY

R. COOKE.

[The observations now published by Mr. Cooke, whose discovery of Black Terns breeding on Pett Level during the war (*antea*, Vol. xxxix, p. 71) will be recalled by readers, are of great interest in carrying the history of the breeding of the Black Redstart in England much farther back, apart from the isolated record for 1845 (*antea*, Vol. xxxix, p. 110), than the previous records (Sussex, 1923 and Cornwall, 1929).—EDS.]

I FIRST saw a nest of the Black Redstart (*Phœnicurus ochrurus gibraltariensis*) towards the end of May, 1909, in an old sheep hut on Pett Level. I frequently saw both parents feeding the four young on the nest. After they left the nest, the young stayed in the vicinity till the late autumn.

The following year a pair of Black Redstarts returned in February, and I saw them constantly until the end of April, when they left. I think they would have stayed to breed, but the sheep hut was occupied by a shepherd. In the autumn of 1910 three males (one adult and two immature) spent a week about some fishermen's huts on the foreshore at Pett, from October 29th to November 6th.

After 1910 I saw Black Redstarts in March, 1911 (three males), October, 1912 (a pair) and March, 1914 (one male). On June 23rd, 1916, I saw five together, three males and two females, all adults.

On September 23rd, 1918, I saw sixteen Black Redstarts together, males and females, several of them immature. They were very busy searching for food among the dry seaweed on the foreshore, and in the cracks of the wooden groynes. In fact, on almost all occasions when I have seen these birds on the foreshore, their food supply was mainly obtained from such cracks. I think the creatures taken were mainly woodlice, which I have often seen them feed to their young in the spring.

I have no further record of Black Redstarts until March 26th, 1923, when I noticed a pair about some rocks where the banks behind Pett Level abut on to the marsh. On April 30th I found their nest, containing three eggs; it was built in a crevice in the rocks, resting on the root of an oak tree which crossed the crevice. This was the first time that I had seen the Black Redstart's eggs, and at first I thought it was a Robin's nest, particularly as this locality had been the territory of a Robin that had specialized in laying white eggs. But later on I saw both hen and cock Black Redstarts sitting on the nest. The nest, which was made chiefly of coarse grass, was lined with fibre and a few pieces of wool. Four young were hatched, and were all reared. They stayed in the vicinity of the nest until the end of June. During July and August I continually saw two old and four young ones on the foreshore, and concluded that they were the same.

In 1924 a pair of Black Redstarts must have bred in the neighbourhood. I did not find the nest, but saw two old and two young during the whole of July.

The next record I have is of two males and one female on Pett Level during January and February, 1929. They were not seen after February 26th. On December 16th, 1931, an adult male, and on January 15th and 16th, 1932, two males, were seen on Pett Level. In February, 1934, a pair spent from the 16th to the 23rd about the Tout Rock on Pett Level. I have no record again till November 18th, 1937, when I watched two males feeding among the seaweed on the foreshore. They were taking sand-hoppers freely.

In July, 1940, Pett Level was closed to the public for military reasons. The next definite record I have is that two pairs spent the whole of the winter of 1941-42 on Pett Level. I am certain that two pairs bred here both in 1941 and in 1942. Though I saw no nest, I saw young birds during both summers.

There were three pairs of Black Redstarts on Pett Level from the middle of February, 1943, and these all bred here, for although I only found one nest, I saw the two other pairs feeding their young in late May and early June. On April 23rd I found a nest behind a picture in an evacuated bungalow. The five eggs had tiny red spots on the large end, and hatched on May 7th. The young left the nest on May 24th, but did not leave the inside of the bungalow until two days later.

One pair of Black Redstarts remained with us all the winter of 1943-44. On March 3rd there were definitely four pairs on Pett Level. I found two nests in 1944, one on May 6th on a shelf of an old bathing hut, and one on May 8th in an old tool-shed. Incubation had started in each case, on four and five eggs respectively. The eggs of the tool-shed nest hatched on May 10th, and those in the bathing-hut on May 12th. The young left both nests on the 17th day after hatching, but those from the tool-shed went back to roost in the shed for six nights after leaving the nest. There was at least one other nest here in 1944, as I saw three different broods being fed in May and June.

Two males and one female spent the 1944-45 winter here. By March 12th three pairs were present again. Two pairs bred in 1945. I saw only one nest, in an old coal-shed left by the military at Tout Rock. It had big young when first found on May 28th. The other nest was in an old shed near the shore, and although I did not find it, at least two other people did so after the young had left the nest. Pett Level was reopened to the public on May 1st, 1945, and most of the bungalows were occupied again by the summer, but the Black Redstarts remained, chiefly about the foreshore. I saw seven on October 10th, the latest date for 1945.

Two pairs were here again by early April, 1946, and at least one bred. The old shed on the foreshore was again used, and two, or

perhaps three, young were reared. The second pair appear to have moved eastwards, for Robert Osborne, one of the Catchment Board workers, who knows something about birds, saw a pair of Black Redstarts about the old Winchelsea Coastguard Station during the latter half of April. Shortly afterwards his work took him away until the last week in July. On August 11th he had to re-erect a shed there that had been blown down by a recent gale, and in it he found a nest which from his description was that of Black Redstart, and definitely a nest of the present year. Moreover in the bottom of the nest were small pieces of white egg-shell. On September 4th he brought me the nest, and I identified it with certainty by its shape, the material used and the small particles of white egg-shell adhering to the inside.

The old shed on the Pett foreshore referred to above contained ten complete nests, and I am of the opinion that each nest had at one time contained eggs. As this shed could not have been used as a nesting site prior to 1941, it would appear that either the pair of birds using it were double-brooded, or it is a case of multiple nesting (such as was recorded for this species in London in 1946), or more than one pair nested simultaneously (as happened at Wembley from 1926 to 1941). Although I have never been able to prove that Black Redstarts are double-brooded, I think they are, as I have seen very young ones being fed as late as July 10th.

The incubation period is 13-14 days. Unfortunately I was only able to check this for two nests, for the two I found in 1944 were being incubated before I found them.

In three of the four cases I had under observation the young left the nest on the 17th day, and in the fourth on the 18th day.

I only once saw the male sitting on the nest, but he takes a very active part in feeding the young. Woodlice are fed a good deal to young in the nest on some occasions; the old birds crush them on a post or rock near the nest. On a post near one of the 1944 nests I quite often saw a small heap of crushed woodlouse-skins, and many of their skins could be seen on the ground beneath the nest. I have often seen both old and young birds taking daddy-longlegs and also butterflies on the wing. The young birds are particularly fond of doing this, and very much resemble Spotted Flycatchers in their actions.

During late autumn and winter Black Redstarts can often be seen on the rocks uncovered by the tide at low water.

The cock begins to sing at first peep of daylight in the morning, and I have on occasion heard them singing on a very moonlight night.



SCOTTISH CROSSBILL (*Loxia curvirostra scotica*), FEMALE ON NEST, SPEY VALLEY,
1947.

(Photographed by Eric Hosking).



SCOTTISH CROSSBILL (*Lavia curvirostris scotica*), FEMALE ON NEST POSTURING ON APPROACH OF MALE, SPEY VALLEY, 1917.

(Photographed by Eric Hosking).



SCOTTISH CROSSBILL (*Lovia curvirostra scotica*), FEMALE BEGGING FOOD FROM MALE, SPEY VALLEY, 1947.

(Photographed by Eric Hosking).



SCOTTISH CROSSBILL (*Loxia curvirostra scotica*), MALE FEEDING FEMALE ON NEST, SPEY VALLEY, 1947.

(Photographed by Eric Hosking).



SCOTTISH CROSSBILL (*Loxia curvirostra scotica*), MALE FEEDING FEMALE ON NEST, SPEY VALLEY, 1947.

(Photographed by Eric Hosking).



SCOTTISH CROSSBILL (*Loxia curvirostra scotica*), FEMALE SWALLOWING
EXCREMENT, SPEY VALLEY, 1947.

(*Photographed by Eric Hosking.*)

STUDIES OF SOME SPECIES RARELY PHOTOGRAPHED.

XIII. THE SCOTTISH CROSSBILL.

Photographed by ERIC HOSKING.

(Plates 9-14).

We regard the title of this series as covering well-marked subspecies as well as species in the strict sense, and on this interpretation the Scottish Crossbill (*Loxia curvirostra scotica*) is certainly entitled to inclusion, though even considered as a species the Crossbill might well be given a place, for the common form (*L. c. curvirostra*) itself has been photographed only *comparatively* rarely.

As is well known, the Common Crossbill is subject to periodical irruptions into the British Isles from the Continent, has bred erratically after such invasions in a great many localities, and has established itself apparently permanently in East Anglia and Ireland, though even here the numbers are subject to fluctuation and to periodical reinforcement from abroad. The Scottish Crossbill, on the other hand, is a more or less sedentary race originally differentiated, no doubt, in the ancient Caledonian pine forest, and still persisting in those parts of North Scotland where the most extensive remnants of the native forest have survived.

The chief difference between the Scottish race and the typical one lies in the Scottish birds having usually, to quote *The Handbook*, a "more massive, deeper and usually blunter bill," especially in the male. This characteristic is sufficiently pronounced in a good many individuals to be noticeable even in the field to experienced observers if a close view is obtained, but it is variable, and the female illustrated in Mr. Hosking's photographs (*cf.* especially Plate 9) could well pass for a Common Crossbill; unfortunately the bill of the male is not clearly seen in profile in any of the photographs.

It can hardly be doubted that after irruptions pairs of the typical race must sometimes breed in the territory of the Scottish form, though actual proof of this is lacking. Whether the latter race has undergone sufficient differentiation to prevent or discourage it from interbreeding with the common form when this is present is unknown, but it would seem that there must be at least a partial barrier against such interbreeding, as otherwise it is difficult to see how the peculiar characteristics of the Scottish bird could be maintained. It may be noted that Hartert resolved the problem academically by maintaining that the Scottish Crossbill was not of the same species as the common form, but should be regarded as a race of the still larger-billed Parrot-Crossbill (*L. pytyopsittacus*) of Northern Europe, but there is no direct or unequivocal evidence in support of this view.

Mr. Hosking's excellent photographs, taken on Speyside, are of particular interest in that they include the female begging food from and being fed by the male on the nest and nest sanitation.

B.W.T.

NOTES.

VARIATIONS IN SONG-PERIODS.

DURING the years 1946 and 1947 I have noticed several species singing outside what appears to be their normal song-period as defined in *The Handbook* charts. Some of these variations are considerable, others less so. The particulars are as follows:—

NUTHATCH (*Sitta europæa affinis*).

A bird heard in quite good song on July 22nd, 1947, near Llangollen, N. Wales. Birds heard in song subsequently in this area on July 24th, 30th, 31st. Another bird in slight song on August 12th, 1947, at Crowcombe in Somerset. *The Handbook* shows no song in July or the first half of August.

SEDGE-WARBLER (*Acrocephalus schænobænus*).

On August 11th, 1947, several birds were in weak song on a small marsh at Minehead, Somerset. Another bird in slight song on September 5th, 1947, at Witton Flash, near Northwich, Cheshire. *The Handbook* shows no song in August or September

[I should have regarded some slight resumption of song in early September as almost regular.—B.W.T.]

REED-WARBLER (*Acrocephalus s. scirpaceus*).

A bird still in quite good song at Rostherne, Cheshire on August 5th, 1947. *The Handbook* shows a complete gap in August.

[Song is often heard in Cheshire in August.—A.W.B.]

MARSH-WARBLER (*Acrocephalus palustris*).

One bird in quite good song on August 11th, 14th, 16th, 1947, at a small marsh at Minehead, Somerset. *The Handbook* shows no song after mid-July.

GARDEN-WARBLER (*Sylvia borin*).

One bird in good song on August 10th, 1947, on North Hill, Minehead, Somerset. Another in sub-song on August 28th, 1947, at Delamere, Cheshire.

BLACKCAP (*Sylvia a. atricapilla*).

One in song on July 20th, 1947, near Llangollen, N. Wales. Another cock in full song on August 21st, 1947, at Watchet, Somerset. *The Handbook* shows no song after mid-July except for a slight resumption in mid-September.

WHITETHROAT (*Sylvia c. communis*).

A cock bird in good song on August 2nd, 1947, near Sale, Cheshire. Another singing on August 10th, 1947, on North Hill, Minehead, Somerset. On August 28th, 1947, there were at least three cocks in full song in the Delamere district of Cheshire. *The Handbook* shows no song after the end of July.

SONG-THRUSH (*Turdus e. ericetorum*).

Two birds in full song in Sale, Cheshire from August 3rd to 11th (inclusive), 1947, after which date I left the area. *The Handbook* only shows exceptional song in the first week of August for this species and the Blackbird.

BLACKBIRD (*Turdus m. merula*).

A bird in quite good song in Sale, Cheshire from August 3rd to 11th, 1947.

REDSTART (*Phœnicurus ph. phœnicurus*).

A cock bird in full winter plumage in sub-song on August 22nd, 1947, on North Hill, Minehead, Somerset. This sub-song was occasionally replaced by the typical loud burst of song characteristic of this species. *The Handbook* shows no song after the beginning of July.

JOHN SOUTHERN.

SUB-SONG OF JUVENILE GOLDFINCH.

ON August 12th, 1947, at Aylsham, Norfolk, I listened to the sub-song of a juvenile Goldfinch (*Carduelis c. britannica*) for about half an hour. The song was subdued and rambling, a mixture of the songs of the Swallow and Blackcap with many other vague and uncertain notes intermingled; nothing could have been more unlike the usual silvery twitter of the Goldfinch. In calm conditions the song became inaudible at 50 yards.

R. A. RICHARDSON.

SISKINS NESTING IN S.E. LANCASHIRE.

DURING the spring of 1947, a Siskin (*Carduelis spinus*) was seen on three consecutive days in a wood to the S.W. of Manchester. So, during the second week in May a determined search was made for a nest in the area where the bird had been seen.

On May 16th a nest was found in a fir tree and the bird flushed from it. The alarm note of this bird sounded like "chuck-a-chuck" or "keek keek."

The nest was made of slender twigs and dried grass, lined with rabbit down and a few feathers. The four eggs were greyish-white tinged with bluish-green and spotted with dark brown spots. They resembled those of the Goldfinch (*Carduelis carduelis*). I watched the return of the bird and noted the upper parts were olive brown, throat and breast were greenish-yellow, and with the exception of the belly was streaked with dusky-black. The situation of the nest, and the sight of the hen bird proved it to be a Siskin. I found the bird to be a very close sitter, but, unfortunately, when I attempted to build a "hide" in an adjoining tree, she forsook the nest. An odd Siskin has been seen in the same wood since this time.

I may add that in 1939, in the same area, a Siskin's nest was found which hatched off. During late May of that year, when I was searching a small fir wood situated to the S.W. of Manchester, my attention was drawn to the excited behaviour of a cock Siskin when I rapped the trunk of a fir tree with my stick (at the time I was looking for nests of the Long-eared Owl).

On further visits to the same locality both the cock and hen Siskins were seen carrying food, so a search was made and a nest was located high up in the fir tree where the male bird had previously behaved so excitedly.

The nest was in an inaccessible position and neither photography nor examination of the nest or eggs was possible, but the birds were seen to visit it with food. Twelve days later the nest, so far as could be ascertained, was empty. I did not see any young birds, but odd Siskins were later seen in this area. I know the Siskin well, and there is no doubt in my mind that this was a nest of this species, and the first to my knowledge in this area.

The Siskin has not previously been recorded as a breeding bird in Lancashire, so far as I am aware. LESLIE L. TURNER.

LONGEVITY OF CHAFFINCH.

A NOTEWORTHY instance of longevity in a Chaffinch (*Fringilla cœlebs gengleri*) has been sent me by Mrs. Crichton-Maitland, of Witham-on-the-Hill, Bourne, Lincolnshire, and I can vouch for its authenticity.

In the summer of 1931 Mrs. Crichton-Maitland observed a male Chaffinch which was unusually tame. For more than five years this bird would take seed from the hand, though it became less confiding in the breeding season. The cock stayed all the winter for several years, but one March flew out of a bedroom window, from which it was habitually fed, during a snowstorm and was not seen again for quite two years.

In the spring of 1944, however, it suddenly reappeared and resumed its old tricks of coming when called, jumping up at the window and tapping for food, and coming into a bedroom first thing in the morning for seed. The bird disappeared about August, returning and entering the house in the spring 1945, and again in 1946. It was still around when Mrs. Crichton-Maitland wrote to me on December 30th, 1946, and must have been at least 15½ years old. This particular cock Chaffinch was identified as the same bird by its odd feet, one rather lumpy, and long bill. JOHN HOPE.

[Miss E. P. Leach, of the Bird Ringing Committee, kindly informs us that the maximum records of longevity for ringed Chaffinches are one of 7 and four of 6 years.—EDS.]

EARLY BLUETHROAT IN CAMBRIDGESHIRE.

ON August 9th, 1947, at Cambridge Sewage Farm we saw a small bird, apparently just emerging from juvenile dress, which puzzled us considerably. It was about the size of a Robin, fairly plump, with a longish, stout, pointed, dark-coloured bill, somewhat flattened, and a conspicuous broad whitish eyestripe starting above the eye and broadening out behind it. On the head and upper nape there were some curious close steely-grey striations; the remainder of the upper plumage was heavily striated with brown, except the base of the tail, which was strongly rufescent. The tail was somewhat short and narrow in relation to the size of the bird. Although we were able to study the upper-parts and profile for some time at close range in a good light, we did not succeed in seeing the breast. The bird sat unusually upright, fairly like a chat, on the top of

hawthorn bushes, and when approached dived down with a quick furtive flight to reappear on another bush until it finally evaded us. The wing-stroke was not unlike a flycatcher's. It was quite silent. Both a Yellowhammer and a Reed-Bunting were perched on adjacent bushes, and enabled us to compare size, stance, bill-shape, etc. The place was near, but not immediately next to some standing water.

Though the Bluethroat (*Luscinia svecica*) has apparently not, or only rarely, been recorded on autumn passage at so early a date, and the habit of perching about ten feet up on bushes appears to be untypical, we are quite unable to arrive at any other identification, though of course the subspecies must remain indeterminate. Comparison with skins of immature Bluethroats in the British Museum confirms our view. The chat-like bill and eyestripe, the rufous tail-base and the peculiar steely striations on the head all point to this species, and seem inconsistent with any other verdict.

E. M. NICHOLSON AND R. S. R. FITTER.

NESTING SEASON OF COMMON BUZZARD.

EARLY nesting records of the Common Buzzard (*Buteo b. buteo*) from Argyll and the south-west of England have already been published (*antea*, Vol. xl, pp. 182-3; Vol. xxxix, p. 346). The following are clutches from Cumberland and Westmorland which from my experience I consider early for this district. April 19th, 1925, four eggs; April 11th, 1926, one egg; April 18th, 1928, three eggs; April 20th, 1929, two eggs; April 21st, 1931, two eggs; April 22nd, 1932, four eggs and one egg; April 20th, 1933, four eggs; April 19th, 1935, three eggs.

R. H. BROWN.

THE notes recently published on this subject prompt me to send additional data from another area of England. For exact comparison with the records given by the Rev. C. J. Pring for south-west England, the following data are from 60 nests examined consecutively by me over a period of years in the Lake District.

Most Buzzards (*Buteo b. buteo*) in this area lay during the ten days April 19th-29th. Any *full sets* before April 21st may be considered early. My earliest records are of a set of three on April 14th, 1932 and another of three on April 15th, 1938. It may be of interest for comparison that the clutch sizes were distributed as follows:—

C/4	C/3	C/2	C/1
1	50	8	1

R. A. H. COOMBES.

WITH reference to previous notes on this subject (*antea*, Vol. xl, pp. 182-3) my own records for Cornwall over a period of nearly twenty-five years show that most Buzzards (*Buteo b. buteo*) in that area lay between April 9th and 20th. Only a small proportion of birds lay after the latter date. This is somewhat earlier than the Rev. C. J. Pring's average for Somerset of April 15th-25th and conforms pretty closely to Mr. Bruce Campbell's average dates for

Argyll. The breeding-season as given in *The Handbook* is too late so far as Cornwall is concerned.

May I point out also with reference to Mr. Gordon's note (*antea*, Vol. xxxix, p. 347) recording "young at least 10 days old" on May 15th and estimating that the first egg was laid about April 7th, that this is based on the assumption (presuming that the reference to "young" really means the oldest chick) that the incubation-period is "probably twenty-eight days" as stated in *The Handbook* (Vol. iii, p. 52). I have, however, shown (Supplementary Additions and Corrections, Vol. v, p. 296) that the period at two nests observed in Cornwall was 34-38 days. The date of laying of the first egg was therefore probably considerably earlier than April 7th.

B. H. RYVES.

COURTSHIP DISPLAY AND SPECIES RECOGNITION IN WHOOPER SWAN.

It appears from *The Handbook* that the description of the sexual display of this species is derived mainly from continental observers and, moreover, that such display has not been observed until the end of March. On February 9th, 1947, I found a flock of 21 Whoopers (*Cygnus cygnus*) resting on the ice of a frozen lagoon on an East Kent marsh. Five birds of the same species appeared shortly, flying towards the main group; they were calling and the birds already on the ground called back to them. When the five pitched there was a general outburst of calls of all the birds and those that had settled held the attitude in which they had landed for some time, i.e. kept the wings half open. The procedure so far observed was obviously the greeting ceremony referred to in *The Handbook*, but this behaviour passed into the true sexual display, for a number of the birds were now found in couples standing breast to breast with wings still held away from the body and continuously waving the carpal portion. The neck was raised vertically and the beak pointed upwards. The opposite bird acted similarly but also repeatedly raised and lowered the head. I believe the latter bird may have been the female. Loud calls of a melodious character accompanied this display. A number of short chases among presumable males were also seen. The entire performance lasted about 15 minutes and was repeated when two more birds joined the flock. It was noticed that when the birds had again settled down the flock was composed largely of birds keeping together as pairs, though there were also one or two groups of four to six birds together.

After some time a party of five Mute Swans (*Cygnus olor*) appeared on the wing and, apparently seeing the Whoopers, made course towards them; this time the Whoopers gave no calls and the Mute Swans, flying very low, passed directly over them without causing any excitement. It is clear that the Whoopers were able to distinguish the Mute Swans from some distance. E. O. HÖHN.

BREEDING OF GARGANEY IN LANCASHIRE.

THE breeding of the Garganey (*Anas querquedula*) at Pennington Flash, Leigh, South Lancashire, was established in 1946 by myself and F. R. Horrocks. One drake appeared on April 14th and remained alone until May 12th. On the next visit (by F.R.H.) on May 16th there were two pairs. It is significant that a pair were seen from April 28th to May 12th by R. H. Dunt and A. Palmer at another flash some three miles to the east (*antea*, Vol. xl, p. 105).

On June 6th I disturbed a female from a nest in the shallow vegetation of the drier portion of the extensive reed bed by Pennington Flash. The nest contained five eggs, but no down and it was assumed that the clutch was incomplete. Although only a brief but careful examination was made, the duck was absent some nine hours later and the eggs were cold. Two days were allowed to elapse, but on June 8th our fears were confirmed, for although the nest was intact the eggs were dirty and covered with dew. They were cleaned, photographed and then removed. No signs of incubation were observed on removing the contents. Frequent observations made subsequently indicated that the pair responsible for this clutch made no attempt to nest again, but departed some time after June 22nd.

The first indication that the other pair were also breeding occurred on June 8th, when the male flew round very close to us emitting the characteristic creaking call. On June 13th the behaviour of the duck suggested the presence of young and on June 22nd, F.R.H. saw the female with a single young. The female and the duckling were seen in flight on June 23rd, by F.R.H. and A.W. Boyd. Observations then became infrequent and the last record was of one female on July 20th.

Prior to 1946 the only records of the Garganey at Pennington Flash were during 1945. On April 15th, 1945, I disturbed two males and one female which rose with Mallard and Shovelers from the shallows. On April 22nd one drake was with Shovelers, the other two being paired and comparatively tame. I was unable to visit the flash again during that season, but recorded the occurrence elsewhere (*N.W. Nat.*, Vol. xx, p. 68). In view of the events of 1946, it is possible that successful nesting occurred in 1945.

In 1947 I first saw a pair of Garganey (accompanying five Teal) at Pennington Flash on April 19th. It is now apparent that nesting did not occur there during that season owing mainly to the fact that a large refuse tip had been extended to within a short distance of the 1946 nesting site and men were working there continually. Despite frequent visits the next occurrence was on June 9th, when I watched a pair in the evening at very close range. Visits then became infrequent, but similar records on June 29th (with F.R.H.) and on August 10th suggest that the pair spent the summer in the area, and sometimes resorted to the smaller flashes.

T. EDMONDSON.

SLAVONIAN GREBE REARING TWO BROODS.

IN the evening of August 12th, 1947, I watched a Slavonian Grebe (*Podiceps auritus*), almost certainly a hen, with one full-grown juvenile and two approximately 10-day-old chicks.

The adult first appeared at the edge of a patch of reeds where a nest had been earlier in the year, and shortly afterwards joined a juvenile which was calling repeatedly in a shrill, cheeping note, rather similar to the mewing call of the adults in the breeding season. Both disappeared into the reeds and about a quarter of an hour later I saw the adult with two chicks rounding the point out of the bay. I got an excellent view of them from about ten yards. The adult had lost all trace of golden ear-tufts and black hood, but otherwise was still in summer plumage. The chicks were both in down.

The juvenile remained in or about the reeds, calling and repeatedly diving and surfacing, appearing usually with a piece of weed in its beak and with which it swam about.

About half an hour later the adult bird reappeared with the chicks, and the juvenile, seeing them, dived and surfaced in amongst them. The adult dived repeatedly as she neared the reeds, bringing up food which she offered to each chick in turn as she swam between them. Each appeared to take part of the food offered.

The juvenile remained with the adult and the chicks and all disappeared into the reeds together.

This would appear to be fairly definite evidence of these grebes producing two broods consecutively. Only one pair nested in this particular reed-bed, and on this loch I have observed that invariably each pair takes and retains a territory containing a suitable nesting site and defends it fiercely against intrusion. The nearest nesting site was 200-300 yards away in another bay and had been untenanted since late July, though a pair nested there, if they did not rear a brood, earlier in the season.

CECILIA KNOWLES.

STATUS OF BAR-TAILED GODWIT ON MORECAMBE BAY.

IN a note on this subject (*antea*, Vol. xxxix, p. 379) Mr. J. A. G. Barnes gives some figures of Bar-tailed Godwits (*Limosa l. lapponica*) seen on the Kent at Arnside and draws conclusions from them. His observations may give an indication of the status at Arnside, but they do not do so for Morecambe Bay, where this godwit is a regular autumn migrant from late July onwards and an irregular winter resident as well. During twenty odd years wildfowling I have watched Bar-tailed Godwits on scores of occasions in autumn and winter on the Walney Channel and its islands, on the Ulverston Channel, at the confluence of Crake and Leven, where Keer and Kent meander through the great sands that fill the head of the bay, and in the estuaries of Lune, Cocker and Wyre. The Kent above Arnside

is the only affluent of the bay where I have spent little time and seen few godwits. Seventy-six on November 28th, 1931, is the most I have seen together in the bay, where they are not found in such large flocks as further south on the Lancashire coast, most parties numbering less than 20. To compare my few spring records with the many for autumn and winter would be misleading as I spend far less time in the bay in spring. However, as my home stands on the shore overlooking the head of the bay, and every tide brings countless waders and other fowl to rest on the salting edge before our windows, we do not have to leave the house to see godwits. That we see them frequently from the house in autumn and winter and only seldom in spring is significant in view of the fact that the frequency of watching is the same.

R. A. H. COOMBES.

COMMON SANDPIPERS DISPLAYING IN WINTER QUARTERS.

ON September 27th, 1947, I was at the Singapore sewage-farm, looking for immigrant waders, and in one section found a group of five Common Sandpipers (*Actitis hypoleucos*), two of which appeared to be juveniles; the other three were in winter plumage.

The birds were frequently squatting down to a sitting position on the concrete walls dividing the filter beds. At intervals one called loudly, and ran rapidly, with its head down, towards its immediate neighbour. Often the latter took to the air and flew for thirty or forty yards, thereby closing the incident. When this happened the aggressor usually turned and ran towards one of the others. It generally continued doing so until it found a bird which responded by running, initially at least. Then it chased it backwards and forwards along the tops of the walls. At intervals the bird in front would make a short flight of two or three yards to another wall, and the other usually followed it. After a time one or other fanned its tail, and tilted it sideways as it ran. The second bird generally adopted the same posture shortly afterwards. Usually, but not invariably, this move was initiated by the one in front.

Shortly afterwards the birds would start circling round each other, still walking with the tail spread and tilted, and the head down, but moving much more slowly. Then one would raise one or both wings vertically above its back with a sudden flick, and drop them again. From this they moved towards each other, until they were standing bill to bill with their breasts almost touching. In this position they kept their legs straight and their necks extended, as though each were trying to look over the head of the other. Then they would raise and lower one or both wings several times, keeping them up for only two or three seconds. As they did so they jumped upwards slightly, like fighting cocks. Finally they rose in the air, still almost breast to breast, for five to ten feet,

keeping their wings as nearly vertical as the exigencies of flight allowed.

From the rise one would plane down to the filter bed again, and the other follow it. When they landed they resumed their running with fanned tails. Once the chasing bird attempted to close with the other and mount it shortly after reaching the ground. On all other occasions the chase and rising flight were indulged in for about five to eight minutes, and then the birds lost interest in each other and resumed their feeding on the filter beds, or resting on the dividing walls.

Chasing birds generally emitted a shrill, high-pitched call of "kitti-wee-it, kitti-wee-it," with the accent on the second phrase at the beginning of their assault. The bird attacked usually uttered a rather softer "weewit, weewit" as it ran. Both calls were continued at intervals through the chase, but the birds were always silent while they stood face to face. As they rose in the air one or both gave a high-pitched "weewit," with the first syllable drawn out into a whistle.

The performance, with at least one chase occurring most of the time, was continued for the hour or so that I was watching them. At first it seemed that two birds were always the active, and the other three the passive, participants. After a time it became apparent however, that it was only a question of degree. There were two birds that usually took the initiative, but in the period during which they were watched each of the five both chased and was chased. On one occasion the two most active birds pursued each other, and went through the whole sequence together.

C. A. GIBSON-HILL.

WOOD-SANDPIPER IN SOMERSET.

As *The Handbook* states that the Wood-Sandpiper (*Tringa glareola*) is a "Rare vagrant W. side of England and Wales," the following note may be of interest.

On August 31st, 1947, one flew past me at Porlock Marsh, West Somerset, and alighted on the mud a short distance away. The speckled upper-parts and long greenish-yellow legs were plainly visible, and in flight the light grey under surface of the wings was very noticeable, compared with the dark appearance of a Green Sandpiper (*Tringa ochropus*) which joined it. The barring on the tail appeared to be considerably lighter than shown in *The Handbook*, and presumably the bird was a juvenile. When flushed it usually gave a high-pitched treble note. It was very tame, and was seen at frequent intervals and close range by J. A. Nelder, H. J. Craske, E. W. Hendy, and the writer.

On September 9th, it was joined by another (much wilder) bird, which was not seen after September 13th. The original bird was last seen on September 20th.

A. V. CORNISH.

PATTERING ACTION OF FEEDING LAPWING AND
PROBING OF STARLINGS COMPARED.

THE pattering action of feeding Lapwing (*Vanellus vanellus*), referred to in *British Birds*, Vol. xl, pp. 125 and 349, seems to merit further study. Having had many opportunities of watching this interesting habit, I have come to the conclusion that it is in the main probably a social activity, of little value to a species when performed by a solitary bird or even by a small number walking about and pattering over a large area of land.

Recently my wife and I watched two Lapwings at particularly close range on the short grass of our own lawn. Standing on one leg, the birds beat out with the other leg, which was held well forward, a deliberate and rapid tattoo upon the ground. The pattering leg was almost a blur. After a few seconds of this the birds, all the time standing erect, stopped pattering, to bend and look intently at the ground as though expecting something edible to appear. The point I wish to stress, however, is that these birds invariably walked away long before any worm, that they might conceivably have startled into activity, could possibly have had time to crawl out on to the surface.

Assuming that small worms, lying amongst the grass roots, are in fact driven to the surface in this way—not, perhaps, an unreasonable assumption—the two birds on our lawn would have had to tread the same ground a second time to catch them. Actually, walking all over the lawn, they rarely did walk twice over the same piece of grass, nor were they observed to pick up anything. Watching Lapwing flocks in a field (strangely enough I have as yet not seen them pattering anywhere else) I have often seen a pattering individual picking up a small worm or some other object from the ground. In the rough grass of a meadow the leg action is not always very easy to see. Except at close range the movement of the leg is easily overlooked, even when viewed through the higher powers of a telescope.

If this interpretation is correct, namely that each bird benefits to a considerable extent by picking up what another member of the flock has “pattered up” out of the ground, perhaps we have here an explanation of the strange open-beaked probing of the Starling (*Sturnus v. vulgaris*). Unless indeed this is an optical illusion, the effect on the earthworm population of, say, five hundred Starlings repeatedly driving a thousand small stilettos into the ground must be very great—far greater than the results achieved by the relatively gentle tapping of the turf by a number of Lapwings. When, too, Starlings drive their closed beaks into the ground and then open them, to tease apart the turf, the resulting noise and the vibration set up by a large flock, must bring many worms up on to the surface.

Whether or not the Starlings' probing serves the same purpose as the Lapwing's pattering, I feel sure that the earthworm's known response to vibration must be taken advantage of by many birds whose habits in this connection are still unrecorded.

BERNARD GOOCH.

RED GROUSE DRINKING.

ON August 22nd, 1947, at Lochindorb, Morayshire, I watched from 25 yards a covey of Red Grouse (*Lagopus s. scoticus*) come down through heather, across a stony beach a couple of yards wide, to drink at the edge of the loch. Eight of the covey of a dozen drank; they spent only a few moments at the water's edge, and did not wade. They made no attempt to splash themselves. It was a day of brilliant sunshine, a very light breeze was blowing off the loch, the time was 11.45 hours, G.M.T. The moor had been without rain for three weeks, and it was abnormally dry, but there was a nearby runnel through the peat which the birds could have used. The moor was not being shot over.

There is no mention in *The Handbook* of grouse drinking. Brian Vesey-Fitzgerald in his recent book on *British Game* stated (page 17): "I have never seen a grouse drink, and I do not know anybody who has." It is of course impossible to say whether the occurrence now recorded was exceptional, or one only exceptionally witnessed.

I. R. C. BATCHELOR.

"ANTING" OF STARLING.—In view of the various notes on this subject recently published it seems desirable to draw attention to a further record of "anting" by a Starling (*Sturnus v. vulgaris*) published by Dr. B. M. Hobby in *Proc. Roy. Ent. Soc. London* (A) 21, p. 2, 1946. A bird observed at Kennington, Berks, was seen to be going through the actions of "anting." When the Starling flew away ants from the spot vacated, including a dead and somewhat battered specimen evidently dropped by the bird, were collected and identified as *Acanthomyops mixtus* Nyl.

GREAT GREY SHRIKE IN WESTMORLAND IN JULY.—Mr. R. W. Robson sends us details of a Great Grey Shrike (*Lanius e. excubitor*) which was seen on July 13th, 1947, near Appleby, Westmorland. The bird had been seen in the district by other observers for a week or more.

FIRECREST IN ESSEX.—Mr. Alwyne C. Wheeler sends us particulars of a Firecrest (*Regulus i. ignicapillus*) seen by him near Connaught Waters in Epping Forest, Essex, on January 6th, 1947. The brilliant crest, black stripe through eye and white bands above and below it, and the bronzy tint on sides of neck were well seen. Although *The Handbook* description of the species as "fairly frequent along E. coast up to and including Norfolk" would include Essex, there are actually extremely few records for that county.

LATE SINGING OF CHIFFCHAFF.—In *The Handbook* chart of bird-song no song is recorded for the Chiffchaff (*Phylloscopus c. collybita*) either for the first half of August or any time in November. Mr. F. Fincher informs us that the species was heard singing near Bromsgrove, Worcestershire, on August 2nd, 5th, 7th, 8th, 9th, 11th, 12th, 13th, 14th, 15th, 16th, 1944; August 2nd, 9th, 10th and 16th, 1945; August 6th, 14th and 18th, 1946. He also heard and saw one clearly singing on November 16th, 1933, near Himley, Staffordshire (*Trans. N. Staffs. Field Club*, Vol. lxxviii, p. 126).

UNUSUAL SITE OF HOBBY'S NEST.—Mr. H. G. Atlee informs us that at the end of August or beginning of September, 1933, he found three young Hobbies (*Falco s. subbuteo*) nearly fledged in an old crow's nest only ten or twelve feet from the ground on two branches of a small pine tree, some 20 feet high or less. The young—which were probably the products of a second laying, since the locality was a Surrey common where the birds are constantly robbed—were out of the nest on September 9th and the parents were well seen on both occasions.

REVIEWS.

Aristocrats of the Air. By Captain C. W. R. Knight. (Williams and Norgate, London, 1946). 30s. 0d.

The first edition of this eminently readable book was first published in 1935, but has been out of print for nearly twenty years. This, the second edition, has been revised and largely rewritten by Capt. Knight and will be welcomed alike by the amateur ornithologist, who can still learn much from its pages, and by the connoisseur of good books. The author writes with an easy familiarity and good humour, and conveys much of the thrill which those who watch large or rare birds at close quarters always experience.

It speaks well for the photographs that all but one of the fifty-four illustrating the first edition can be included in the second; some may not be in the same class as those published more recently, yet others remain in the top flight judged by any standard. They are strictly relevant too, for much of the story is of the birds watched, photographed and here portrayed: the text is not a mere cradle for the illustrations, nor do the illustrations intrude upon the text. J.A.G.

Meet us in the Garden. By Frances Pitt. (Lutterworth Press, London, 1946). 8s. 6d.

Miss Pitt's readers will not be disappointed in this latest product of her pen, intended "as an introduction to help those who want to know about the birds . . . that come round the . . . garden. It is hoped . . . it will help aspiring naturalists, whether young or old." This little book is perhaps especially written for the young, but there will be bird-lovers of all ages attracted to it. There is nothing to hold the serious naturalist for the information given is wrapped—very charmingly—in the mass of subjective observation.

The events of the year in Miss Pitt's garden are chronicled month by month in the lively and intimate way which her readers will anticipate. If there be one discordant note it lies in the predacious activities of Miss Pitt's cat, which has pried into every chapter and is suffered with a cats-will-be-cats attitude ill-becoming such an ardent bird-lover. We cannot pass uncontradicted the statement (p. 93) that the fruits of the spindle are never touched by birds; Robins and tits eat quantities of them in December.

In the November chapter the reader will be surprised to find whole sentences rehashed and transplanted there from January. The text is punctuated with a number of scraperboard illustrations by Stanley Herbert which are both relevant and artistic in themselves. J.A.G.

The Fauna and Flora of the Ilfracombe District of North Devon (promoted by the Ilfracombe Field Club). Edited by Mervyn G. Palmer. Exeter, 1946.

At a time when many natural history societies are languishing or moribund it is encouraging to find that the Ilfracombe Field Club has had the energy to compile lists of most of the groups of animals and plants found in its area and to issue them in a well-printed and convenient handbook. The area covered is that within a radius of about 10 miles from Ilfracombe and this includes the estuary of the Taw and Braunton Burrows to the south and the North Devon coast from Morte Point to the Somerset border. For some unexplained reason it also includes Lundy, 24 miles away in the Bristol Channel. It seems to us that this creates quite unnecessary confusion. In the list of birds compiled by Mr. N. V. Allen records from Lundy are included in the general account and a separate summary of birds recorded from Lundy is added at the end. As there were to be two lists it would seem obviously preferable to have confined one to the mainland area round Ilfracombe and the other to Lundy.

As it is, the statements as to status sometimes apply to the mainland and sometimes to Lundy. For instance the three species of woodpecker are recorded as "Resident, uncommon" though none of them appear ever to have been seen on Lundy, whilst the Manx Shearwater and Kittiwake are recorded as "Resident, abundant" though neither has ever been known to nest on the mainland.

Within the two areas 260 species or subspecies, exactly half the British total have been recorded. The list does not seem to have been very critically compiled, as subspecific names are used throughout, even in cases where considerable doubt must arise as to the subspecies concerned. For instance the British Chaffinch (*Fringilla cœlebs gengleri*) is said to be "Resident and winter visitor, abundant." Has Mr. Allen, or anyone else, critically examined Chaffinches wintering in Devon and decided that they belong to the British race? It is stated that six British Twites (*Carduelis flavirostris pipilans*) occurred at Woolacombe in October, 1937, on the authority of the Devon Bird Watching and Preservation Society's Report. Unless these birds were shot it is impossible to know whether they were of British or Continental origin and therefore only the binomial name should have been used.

These are only minor points and we welcome the production of this list brought up to date for a definite region and hope other societies will follow Ilfracombe's lead. W.B.A.

A Guide to Wicken Fen. 3rd Edition. Published by the National Trust.

The number of species of birds in a habitat like Wicken Fen in its present condition is strictly limited, but would rapidly increase if there were some stretches of open water such as existed in the past. Dr. Ennion's *Adventurers' Fen*, which told so admirably of the conditions in that part of Wicken just before it had to be reclaimed during the recent war, makes that clear, and a most interesting suggestion, that part of this should be reflooded when world conditions allow, is made in this guide. Typical of the few are Grasshopper- and Reed-Warblers, Short-eared Owl and Montagu's Harrier. The Bittern nested in 1938 and 1939 and a Heron in the reeds in 1939, and before the re-draining Black-headed Gulls and a pair of Black-necked Grebes. If the present owners succeed in providing a mere and suitable ground for waders, as at Swim Coots and Rush Hill in Hickling Broad, they will add greatly to the amenities of this National Trust property and bring back to it some of its former inhabitants. A.W.B.

Bird Flight for Bird Lovers. By Jack Parham. (The Drysdale Press, Ltd.). 7s. 6d.

A book written mainly for children, dealing with the elementary principles of flight, in which the author draws comparisons between bird-flight and that of aircraft, with partial success. It contains a number of minor, and a few gross errors (*e.g.*, the statement on page 25 that the Spitfire climbs to the height of Mt. Everest at an angle of 45°), which could have been eliminated by submitting the manuscript to a competent aerodynamicist. In spite of its shortcomings, the book will assist its readers towards an elementary understanding of bird flight, a process in which the excellently clear drawings by C. Rupert Moore, A.R.C.A., will play a good part.

The same book, with a different binding and wrapper, appears as *The Beginner's Guide to Flying*. Amateur pilots are recommended to study instead the books on elementary aerodynamics specially written for them.

R. A. CARR-LEWTY.

LETTERS.

USE OF BRITISH TRUST RINGS OVERSEAS.

To the Editors of BRITISH BIRDS.

SIRS,—It seems an opportune moment for making a plea that the scope of the British Trust Ringing Scheme should be widened by making rings available for use outside the British Islands. While we fully appreciate the organizational and supply difficulties involved, we would point out that these were successfully overcome by foreign ringing schemes before the war, and now that some of the latter no longer exist, the prohibition on the export of British rings is not only wrong in principle in any modern conception of the science of ornithology, but in practice prevents much new and valuable ground being broken in the studies on which bird-ringing throws light.

It should, we think, at least be possible to begin to plan the full extension of the scheme, even if, in the first instance, the use of rings were to be limited to birds on the British List, data regarding which—wherever gathered—are of immediate interest to all British ornithologists. Such a concession would be of especial interest to ornithological workers in Africa and there is a good chance of results being obtained of at least equal value to those reached under the present system, which are now often merely repetitive and have always run the risk of being one-sided, owing to the restricted scope of the ringing.

No doubt it will be argued that separate ringing schemes should be set up by ornithologists in Africa; or use made of Cairo Zoo rings, if these are still available. The complications of dealing with obscure localities or, if the scheme were fully extended, with birds unknown in Britain, may also cause hesitation. But in the first place it is essential to a successful ringing scheme that it should have universally known and stable headquarters, and nowhere could be better than the British Museum, London. Secondly, headquarters so situated should surely not be appalled at the task of dealing with any corner of the Empire, or even of the world.

The attitude of British ornithology has often been absurdly insular, in spite of the existence of the Empire. If new and valuable experiments based on ringing are only to be made possible outside Britain when and if foreign rings again become available, not only will the prestige of British ornithology suffer, especially within the Empire, but a great opportunity will also have been lost of establishing its universal scientific outlook.

H. F. I. ELLIOTT, M. F. M. MEIKLEJOHN.

[The Chairman of the Bird-Ringing Committee comments as follows:—

"I agree that it would be well to begin considering whether ringing activities could be extended to countries where there are at present no opportunities for such work. Any steps of the kind should be carefully planned with a definite objective in view, and British ornithologists would probably be most interested

in the ringing of Palearctic migrants in African territories. Through what agency action should be taken is a matter on which I cannot properly express an opinion until I have been able to consult my colleagues.

A. LANDSBOROUGH THOMSON."]

DANGERS OF NESTLING RINGING.

To the Editors of BRITISH BIRDS.

SIRS,—In my observation of broods, which were being weighed daily, there have been many occasions, when the parent birds endeavoured to remove rings from newly-ringed young. The sight of these bright objects on the legs of chicks apparently stimulates the old birds to carry them away as they would faecal pellets. On May 4th, 1946, both parent Robins were seen in turn, to poke, first gently, then furiously, among their brood. The rings were tightly put on, a small overlap being well pressed home, so that the rings could not be removed. The result was that in pulling the ring, they pulled the young bird as well and almost had it out of the nest.

This actually happened with young Chaffinches on May 22nd, 1947. I watched the mother bird's return after the young were ringed. A few seconds later one of the nestlings was pulled right over the side of the nest. It fell to the ground. I replaced it, but the following day a second young one was found dead on the ground, and there was no doubt it had been pulled out in the same way.

There have been occasions as well, when, if the ring were large enough to slip over the foot, even with a pull, the parent birds would succeed in getting it off.

May I suggest to nestling ringers, that nests should be revisited an hour after ringing on all occasions, to make sure that both rings and young birds are in their proper place.

JOHN LEES.

BIRDS OF THE LONDON AREA, 1900-1950.

To the Editors of BRITISH BIRDS.

SIRS,—The London Natural History Society is undertaking the production of a book on the Birds of the London Area for the period 1900-1950. One part of this work will consist of a systematic list of birds, on the lines of a normal county history; another section will be devoted to the ecological treatment of typical habitats and the effect of London on the avifauna. The London Area is defined as lying within a circle of twenty miles radius from St. Paul's Cathedral, and includes the whole counties of London and Middlesex, with parts of Buckinghamshire, Essex, Hertfordshire, Kent and Surrey.

The Society appeals for bird-watchers who have lived in or visited this area at any time since 1900 to send them any unpublished notes of interest which they may have. Notes are required on all species except in the case of *isolated* records of the following birds:— Carrion Crow, Rook, Starling, Greenfinch, Chaffinch, House-Sparrow, Skylark, Great Tit, Blue Tit, Willow-Warbler, Whitethroat, Song-Thrush, Blackbird, Robin, Hedge-Sparrow, Wren and Moorhen. Notes on these species *are* required, however, if they refer to Inner London, or, in the case of Rooks, to sites, size of rookeries or flight lines and roosts. Details are also wanted on flight lines and roosts of Starlings. Information on status or changes in abundance is wanted for all species, including the above list.

Points of particular interest on which information will be welcome include notes on numbers, sex-ratios, clutch size, parasites, roosting, migration and, where they are of special relevance to the London Area, on nest sites and materials, food, habits and behaviour.

Communications should be sent to E. R. Parrinder, 27, Gwalior House, Chase Road, Southgate, London, N.14.

R. S. R. FITTER.

NOTICE TO CONTRIBUTORS.

British Birds accepts papers and notes dealing with original observations on the birds of the British Isles and Western Europe or, where appropriate, on birds of this area as observed in other parts of their range. Review articles on subjects of current ornithological interest will also be considered.

Contributors are asked to observe the following points, attention to which saves the waste of much editorial time on trivial alterations.

MSS. if not typed should be clearly written. Authors of papers, especially those containing systematic lists, lists of references, tables, etc., should consult previous papers on similar lines in *British Birds* as a guide to general presentation and set-out, including use of particular type, stops, and other conventions, such as date following the month (January 1st, etc., not 1st January), names of books and journals in italics, not inverted commas, and so on. Capital initial letters are to be used for proper names of definite species, but not for names used in a general sense or covering more than one species: thus "Great Tit," but "flocks of tits," [In systematic lists the whole name should be in capitals.]. The scientific name (underlined in MS. to indicate italics) follows the English name in brackets without any intervening stop. Scientific nomenclature follows *The Handbook of British Birds* or H. F. Witherby's *Check-List of British Birds* based on this. When the subspecific name (if this is used) repeats the specific name the initial letter only should be used for the latter; otherwise the whole name should be given in full: thus "*Parus m. major*," but "*Parus major newtoni*."

Notes should be drawn up in as nearly as possible the exact form in which they will be printed, with signature in BLOCK CAPITALS, and the writer's address clearly written *on the same sheet*. If more than one note is submitted each should be *on a separate sheet* with signature and address repeated. Though suitable headings and scientific names can be added by the Editor, if necessary, they should be inserted by authors as far as possible. Communications should always be as concise as possible, though reasonable detail can be given where this is important. Notes or records of subsidiary importance may be abbreviated or otherwise modified by the Editor for inclusion in the section of "Short Notes." Maps or graphs must be *neatly* and *boldly* drawn in Indian ink, with due allowance for reduction when necessary.

Photographs are accepted primarily as illustrations of papers or notes, but good prints of species rarely or not previously photographed or illustrating important points of habits, behaviour or field characters will also be considered on their own merits.

Notes and papers for publication and other communications of strictly editorial nature may be addressed direct to the Editor of *British Birds*, 9, Marston Ferry Road, Oxford. Enquiries or requests for information not immediately related to material for publication must be accompanied by a stamped and addressed envelope.

Short notes accepted for publication without material alteration are not acknowledged by post except by special request, but proofs are submitted to the writers in due course. Authors of *papers* receive 20 separate copies free of charge. Any additional separates required must be ordered when returning the proofs and be paid for by the author.

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APPOINTMENT.—The Bureau of Animal Population, Oxford University, is considering appointing a Field Assistant.

The appointment would be for three years in the first instance and work would mainly be assisting research in animal ecology on the University's woodland estate at Wytham near Oxford. At the moment study is concentrated on the populations of small mammals and bird predators ; and there would be good opportunity for learning field techniques and a general background to the investigation of population control problems, which would provide a training for the wardenship of nature reserves and so on.

The main qualification needed is enthusiasm for field work and applicants will be preferred who have finished their military service.

Further details can be obtained from H. N. Southern, Dept. of Zoological Field Studies (Bureau of Animal Population), 91, Banbury Road, Oxford.

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BIRD LIFE ON THE PETT LEVEL FLOODS, 1941-1943

BY

R. COOKE.

[In 1940 Pett Level in Sussex was flooded as part of the war-time defences of the south coast, and a considerable area thus reverted for the time being to conditions which must have resembled those prevailing in this and other low-lying coastal tracts before man's earliest attempts at reclaiming them. It might have been anticipated that such a drastic transformation of an area so close to the Continent and in the regular track of migration of so many species would exert a profound effect on its bird population. But since the Level was also a prohibited area ornithologists might well have been left in the tantalizing position of being able to do little more than speculate on the nature and extent of the changes produced by this unique event—changes which in the nature of the case could not, for the most part, survive the re-drainage of the land. Fortunately, however, the ornithological effects of the flooding found an indefatigable recorder in Mr. Reginald Cooke, whose important discovery of the breeding of Black Terns in the inundated area has already been described in *British Birds* (*antea*, Vol. xxxix, pp. 71-2). Mr. Cooke combined in a most opportune manner an intimate knowledge of the normal bird population, based upon long residence on the Level, with official war-time duties which enabled him to get about in a way which no outsider could possibly have done. His narrative brings vividly before the reader the remarkable changes which were in fact brought about. We consider it well worth while to record these in some detail, as he has done, for it is clear that what was from most points of view a deplorable necessity was nevertheless tantamount to a biological experiment of exceptional interest and one which is most unlikely ever to be repeated.

For the benefit of those unacquainted with the normal bird population of the Level, it may be stated that Mallard, Ringed Plover, Lapwing, and Redshank have always nested there in some numbers. Garganey had been known to do so on four occasions in the previous forty years and Sheld-Duck first arrived in the district in 1939, while Oyster-catchers and Black-headed Gulls, though former breeders, had not been known as such within living memory. Teal, Wigeon, Pintail, Shoveler, Tufted Duck, Great Crested Grebe, Black, Common and Little Terns and Herring-Gulls all nested for the first time on record in this part of Sussex during this period of inundation.

In the winter Mallard and Teal were always present in small numbers. During cold spells Sheld-Duck, Wigeon, Shoveler and Pochard were fairly common, and a few Scaup, Tufted Duck and red-headed Smew were nearly always present. Gadwall were also sometimes seen in small numbers.—EDS.]

1941.

DURING the summer of 1940 the marshland at Pett Level, about 1,000 acres, was flooded. This was done mainly by letting in the sea through gaps made in the sea-wall. By November of that year numbers of duck were congregating there, but as it was not until the spring that I was able to secure a suitable boat, I could not determine all the species; they were mainly Mallard (*Anas p. platyrhyncha*), Wigeon (*A. penelope*) and Teal (*A. c. crecca*), though on December 26th I was able to identify a flock of about forty Goldeneye (*Bucephala c. clangula*).

All were completely unmolested during that winter, as the area was a prohibited one, even to the military. Being in charge of the coast-guard post at Pett Level, I had access to it at all times, particularly as the southward boundary of the flood was the sea-wall, about three miles in length. By early March I was able to secure a good flat-bottomed boat, which proved to be ideal for getting about over the flood.

About March 10th I first visited the islands, which were mainly the ditch banks and the higher portions of land that remained out of the water. The biggest of these was not more than a quarter of an acre in extent and the ditch banks were from one or two to four yards in width. There was plenty of cover on most of them, dead thistles, nettles and grasses of the previous year and debris driven by the wind and stranded in shallow water, while the tops of tall reeds and rushes projected out of the water and, though dead, did not rot away until later. On this occasion large numbers of duck and other birds were seen, but so early as this I could only speculate as to which would breed there.

On April 3rd I found the first duck's nest, a Mallard's. This gave me rather a thrill, as I had been in some doubt as to whether any of the ducks would breed there. At that date there were large numbers of Mallard, Shoveler (*Spatula clypeata*), Sheld-Duck (*Tadorna tadorna*), Coots (*Fulica a. atra*), Moorhens (*Gallinula ch. chloropus*), Lapwings (*Vanellus vanellus*), Redshanks (*Tringa totanus*), and Black-headed Gulls (*Larus r. ridibundus*) on the flooded area, with about 200 Wigeon, a few Teal, Pintail (*Anas a. acuta*) and Tufted Duck (*Aythya fuligula*) and two or three pairs of Garganey (*A. querquedula*). On the 10th six Kentish Plover (*Leucopoliuss a. alexandrinus*) were seen.

On the 25th I found eleven Mallards' nests, one Shoveler's (the first, so far as I know, ever found on the Level) and many Coots', Moorhens', Lapwings' and Redshanks'. The last two were nesting in numbers far greater than in pre-war years. Almost every tuft of grass held a Redshank's nest, while some had made nests like that of a Lapwing, on the dried mud. On this day I also flushed a Garganey duck from some nettles, but was not absolutely sure of her identity at the time, as Shoveler and Garganey ducks are sometimes very much alike, except that the latter is smaller and rather

lighter in colour. Later on I found this bird's nest in the near vicinity and verified her identity. Two pairs of Mute Swans (*Cygnus olor*) were also nesting.

The next visit, on May 6th, was a very interesting one. On one small island, not more than a quarter of an acre in extent, there were five Shovelers' nests, five Mallards', three Lapwings' and five Redshanks'. Altogether on this occasion I saw eleven Shovelers', and very many Mallards' and Coots' nests. These were on islands on the landward side of the water and were not frequented by the gulls, which had made their home on the islands toward the seaward side. I saw about twenty nests with eggs of the Black-headed Gull and seven nests with eggs of the Herring-Gull (*L. a. argentatus*). No eggs of the Common Tern (*Sterna h. hirundo*) or Little Tern (*S. a. albifrons*) were seen on this visit, but many birds of both species were there. On the same day I found the first Garganey's nest. This was in some low nettles and very well hidden, with plenty of down. It had eight eggs slightly smaller than those of the Shoveler. During the day I saw seven Garganey drakes together, a few Teal and Pintail and a pair of Tufted Ducks. I feel sure that this pair of Tufted Ducks bred, although I did not find the nest, as owing to the extent of water and the number of islands it was impossible to search over more than about half the area. Consequently the islands farthest away from home were never examined. Many Ringed Plover had nests on the dried-up mud, where the water had fallen away from the islands by evaporation. In every case their nests were lined with small shells, which must have been brought from the sea-shore.

On May 12th many Bar-tailed Godwits (*Limosa l. lapponica*) arrived and stayed until the 15th. There were at least two hundred, in five flocks.

Sheld-Ducks, that first nested in the district in 1940, near the Haddocks coast-guard station, were now present in numbers and nesting in the high banks bordering the north side of the flood. A little later I found several of their nests in rabbit-holes.

About May 16th I made another visit, this time more than anything to get some idea of the numbers of Black-headed and Herring-Gulls and terns that were breeding. I estimated that there were 250 pairs of Black-headed Gulls, 20 pairs of Herring-Gulls, 100 pairs of Common and 50 pairs of Little Terns. The Black-headed Gulls were in four or five small colonies. The Herring-Gulls had taken possession of two or three small islands quite near them. The same day I first saw the Black Terns (*Chlidonias n. niger*). I will say nothing more about them here, as they have been fully dealt with in a previous paper (*Brit. Birds*, Vol. xxxix, p. 71), except that their behaviour led me to believe that that they were not just on migration. I found another Garganey's nest on this day, and like the first it was in low nettles and had nine eggs. I took a little of the down from this nest as well as some

from a Shoveler's near by, as I wanted to compare the two together to see if I could determine the difference. The Garganey down was a little lighter in colour, but very little. A few days later I caught this Garganey on her nest, as I had got confused as to which was which, owing to there being so many nests and to my having kept very few notes. However, it did no harm and she hatched off all right. There were many broods of Mallard about and seven old ducks with their broods had collected together, 60 or 70 in one lot. There were also many young Lapwings and Redshanks about. A few Teal and Pintail were also seen and six Tufted Ducks, four drakes and two ducks.

It was about this date that I discovered that the Black-headed Gulls were killing off many of the young birds, particularly young Coots. The gulls did not leave their nesting-site to attack, but whenever a brood of young ducks or Coots ventured near them they attacked them unmercifully. On one occasion I counted over thirty dead young birds, chiefly Coots, near the gulls' nests.

By early June most of the eggs had hatched or were hatching. There were quite a few broods of Sheld-Duck on the water. A little later they congregated into three or four lots and there were as many as a 100 in the largest. About this time I saw a brood of very young Teal, the first I had ever seen. Oyster-catchers (*Hæmatopus ostralegus occidentalis*) had been present all the season and at least three pairs nested. Although I did not find a nest I saw their young on many occasions right through the fledging period.

The water abounded with small shrimps and insects, with which the Black-headed Gulls fed their young, but the terns brought food for theirs mainly from the sea. The Little Terns were in two or three small colonies near the sea. In 1941 there were not more than 50 pairs, but in 1942 and 1943 there were many more. The mortality amongst the young Coots was very high at this time and although, as before stated, the Black-headed Gulls killed a lot, I found numbers of dead well away from the gull colonies, so there was another unknown factor. A single pair of Great Crested Grebes (*Podiceps c. cristatus*) was also present and though I did not find their nest I saw their two young ones on June 22nd.

Apart from a visit or two to the Black Tern's nesting site, which was a long way from home, my nesting was now about finished for 1941, but I was beginning to look forward to seeing the autumn and winter visitors. By the end of July the Lapwings had gone and the gulls and terns retired to the sea-shore. Several Montagu's Harriers (*Circus pygargus*) arrived the second week in August and one was unfortunately shot on the 12th. On the 15th the Garganey had collected into a flock, which numbered about 50—soon after they left. At the end of the month some Ruffs (*Philomachus pugnax*) arrived. There were never more than 20 and they left in the first week in October. Greenshanks (*T. nebularia*) and three

Spotted Redshanks (*T. erythropus*) arrived on September 10th, the former staying through the winter, the latter till October 7th.

By early October I calculated that about 5,000 ducks were on the water, including Mallard, Wigeon, Teal, Shoveler, Sheld-Duck, Tufted Duck and Pochard (*A. ferina*), while Pintail had returned in numbers. Waders seen were Redshanks, Knot (*Calidris c. canutus*), Dunlin (*C. alpina*) and Purple Sandpipers (*C. m. maritima*). The last, about 20 in number, arrived about the 15th and remained throughout the winter. Three Hen-Harriers (*C. cyaneus*) replaced the Montagu's Harriers about this time and also remained the winter. Tufted Ducks were very plentiful during the winter and there were always about 200 present. Pochard, Scaup (*A. m. marila*) and Brent Geese (*Bernicla branta*) were also numerous, though the last kept mainly to the foreshore. Other ducks seen were Goosanders (*Mergus m. merganser*), one or two on every visit I paid to the flood, and on December 28th seven were seen together. On the same day two Red-breasted Mergansers (*M. serrator*), one of them an adult drake, were seen, and at the end of the month about a dozen Smew (*M. albellus*), two of them adult males, and five or six Long-tailed Ducks (*Clangula hyemalis*) were present.

1942.

THERE was much cold weather in early 1942 and at times the flood was almost entirely frozen over and unbroken. At the end of January only an acre or two at the west end remained open and nearly all the duck congregated there. Although I had to be content with watching them through binoculars at about 400 yards range, nearly all the species could be recognized. Many Pochard were present, but perhaps there were more Wigeon than anything else. Tufted Duck, Sheld-Duck, Shoveler, Scaup and Mallard were plentiful, with a few Goldeneye, eleven or twelve Gadwall (*A. strepera*), and one or two Goosanders. By estimation there were 4,000 ducks congregated on the acre or two of water. I tried on several occasions to make them all take wing at once, but was never successful; the Pochard always remained feeding when most of the non-diving ducks had flown.

On the 10th five Shore-Larks (*Eremophila alpestris flava*), a bird I know well, were seen, and on the 15th a beautiful adult male Goosander was brought for identification, as well as a Gadwall drake. They had been shot at evening flight, where the water joined the land on the north side. I had first seen the Gadwall on the previous day, and they stayed until February 27th.

(To be continued).

WINTER FEEDING HOURS OF ROBINS, BLACKBIRDS
AND BLUE TITS

BY

JOHN LEES.

IT IS a matter of common knowledge that birds do not spend the whole of their waking hours looking for food, even during the short days of mid-winter. Gulls and waders, for instance, may be seen standing in flocks, inactive for hours on end. The watcher knows times, both in the country and in the garden, when most species are foraging for food, and other times when there is little or no activity in this direction. We may ask, are there certain hours of the day when certain species do their feeding? We might hardly expect, in view of the variations in climate, and in the length of day, that such hours could remain fixed for any length of time; but at least we might be able to find times during the day when feeding was at a maximum or a minimum.

While engaged in the investigation of the variations of a bird's weight during the hours of day, I found that the problem was intimately connected with the feeding habits of the species in question. Obviously the weight-graph of a bird that crowds its feeding into the morning hours, must be different from that of one that spreads its feeding over the whole time of daylight.

A priori consideration would lead us to expect that in winter, the first hours of day would be spent feeding to make up for the deficiencies due to the hours of darkness and cold. Similarly we should anticipate considerable feeding activity in the evening, in preparation for the night. Such conclusions, however, could not stand without experimental verification. With a view to this, I began a series of observations of the times when some of the common species came to the bird-table for food. It was noted then that the first morning feeders were usually Blackbirds and Robins, and that the tits did not arrive until daylight was well advanced. Robins and Hedge-Sparrows continued into the dusk of the evening, but not Blackbirds. I was unable to complete this series, as it called for more watching time than I had to spare; and in view of food-scarcity, it was impossible to keep the table continually replenished.

In the trapping of the birds, however, I had already recorded the time of day when each bird came in for marking and measurement; and it struck me that the record of these times would provide exactly what was wanted. For the traps were open at all times of the day, were kept supplied with bait, and would thus provide inducement to feed, which might be reckoned as equal throughout the day. Further, these traps were automatic, not dependent on the whims of a man pulling a string. Each trap was fitted with a warning device, so that it was known exactly when the bird entered. Arrangements had been made to ensure that a bird would be

attended to at any hour of the day, so that there was no source of error due to absences at particular hours.

Before making the equation, trapping frequency=feeding frequency, certain potentially detrimental factors required consideration.

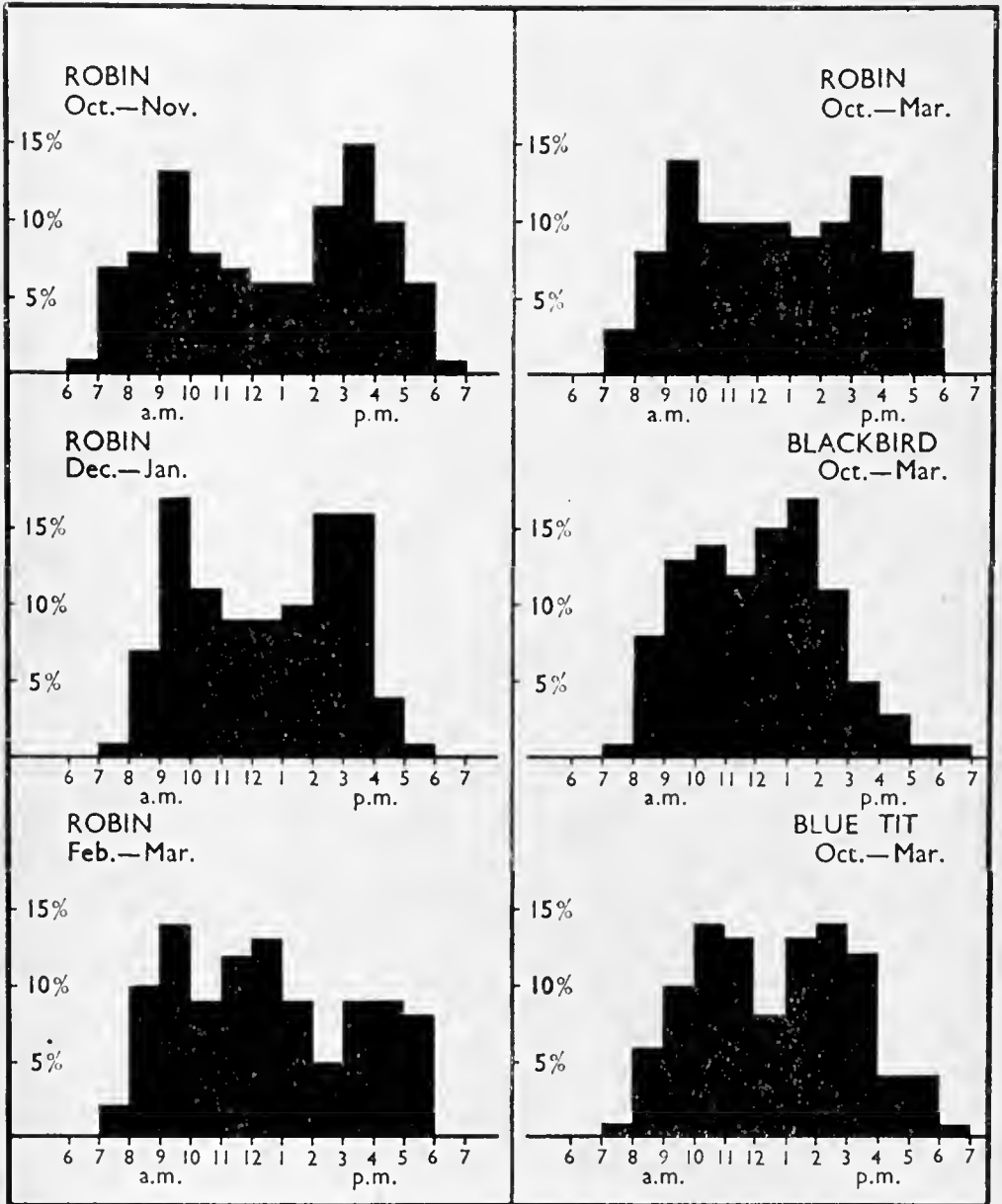


DIAGRAM TO ILLUSTRATE HOURLY FEEDING ACTIVITY OF ROBIN, BLACKBIRD AND BLUE TIT FROM OCTOBER TO MARCH.

The first of these was the presence of children on the street near by at regular hours, on their way to and from school. It was found that the sound of their voices, however, had no effect whatever on birds feeding elsewhere in the garden and was thus hardly likely to affect arrival at the traps. The second factor

was the somewhat unpredictable trap-psychology of the birds, which makes trapping very easy at some times and very difficult at others. The observed effect of this, however, was over whole days or over whole seasons, but not on the hours of the day; thus I felt justified in assuming that its effect on the results would be negligible.

The species for which sufficient working data were available were the Robin (*Erithacus rubecula melophilus*, with a few *Erithacus r. rubecula* and some birds of intermediate type), the Blackbird (*Turdus m. merula*) and the Blue Tit (*Parus cæruleus obscurus*). The period covered by the results included the two winters, October, 1945 to March, 1946, and October, 1946 to March, 1947. Table I gives the number of occasions when the species was trapped during the various hours of the day. By expressing each of these numbers as a percentage of the day's total, we have what may be called an hourly index of the feeding activity of each species. If this index for a particular hour be 25, say, it may be reckoned that on the average the bird consumes 25%, i.e., one quarter, of its daily food in that hour. This reduction to percentages, shown in Table II, allows the results to be compared *inter se*.

These percentage indices of feeding activity are shown in diagrammatic form opposite.

TABLE I.

NUMBER OF BIRDS TRAPPED IN EACH HOUR OF DAY.

Hour (GMT)	ROBIN				BLACKBIRD				BLUE TIT			
	Oct. Nov.	Dec. Jan.	Feb. Mar.	Total	Oct. Nov.	Dec. Jan.	Feb. Mar.	Total	Oct. Nov.	Dec. Jan.	Feb. Mar.	Total
a.m.												
6-7	1	0	0	1	0	0	0	0	0	0	0	0
7-8	7	1	2	10	0	0	1	1	0	0	2	2
8-9	8	7	11	26	1	3	5	9	5	0	4	9
9-10	12	16	15	43	3	6	5	14	0	10	6	16
10-11	8	11	10	29	0	6	9	15	3	9	9	21
11-12	7	9	13	29	0	5	8	13	3	11	6	20
p.m.												
12-1	6	9	14	29	3	6	7	16	0	7	6	13
1-2	6	10	10	26	2	5	11	18	4	12	4	20
2-3	11	15	6	32	1	9	2	12	2	7	12	21
3-4	14	15	10	39	1	3	1	5	1	7	10	18
4-5	10	4	10	24	0	0	3	3	0	1	5	6
5-6	6	1	9	16	0	0	1	1	0	0	6	6
6-7	1	0	0	1	0	0	1	1	0	0	2	2
7-8	1	0	0	1	0	0	0	0	0	0	0	0

TABLE II.

PERCENTAGE INDEX OF FEEDING ACTIVITY FOR EACH HOUR.

	a.m.					p.m.						
	7-8	8-9	9-10	10-11	11-12	12-1	1-2	2-3	3-4	4-5	5-6	6-7
Robins												
Oct.-Nov.	7	8	13	8	7	6	6	11	15	10	6	1
Robins												
Dec.-Jan.	1	7	17	11	9	9	10	16	16	4	1	0
Robins												
Feb.-Mar.	2	10	14	9	12	13	9	5	9	9	8	0
Robins												
Oct.-Mar.	3	8	14	10	10	10	9	10	13	8	5	0
Blackbirds	1	8	13	14	12	15	17	11	5	3	1	1
Blue Tits	1	6	10	14	13	8	13	14	12	4	4	1

ANALYSIS OF RESULTS.

Comparing the diagrams of general winter feeding of the three species (right hand side of page) we may remark first that the three diagrams have a rough similarity. Each shows almost equal maxima in the forenoon and afternoon, and a mid-day slackening of activity. So far, they follow the scheme anticipated by *a priori* consideration. Beyond that, the differences are strongly marked.

The Robin has its maxima well separated—these being associated with the hours after sunrise and before sunset. The less active period over mid-day extends to about 5 hours.

The Blackbird has maxima close together, $1\frac{1}{2}$ hours on each side of mid-day, and the noon break is short and not pronounced.

The Blue Tit's maxima are between those of the other two species, and there is a well defined break at mid-day.

Turning to the morning, we note that the Robin is the earliest to feed and is closely followed by the Blackbird, the Blue Tit being later.

In the evening periods, the differences are pronounced. The Blackbird does not feed much after 3 p.m., though some activity does go on till the late evening.

The Blue Tit's activity has a sharp decline at 4 p.m., and it too does some feeding in the later hours.

With the Robin, the regular "steps" up to 6 p.m. would suggest that it goes on feeding till sundown or after, and is thus the latest feeder of the three.

In the case of the Robin, we have enough data to make an analysis of the three two-month periods (left-hand diagram, p. 72). In the first two of these we have the morning and evening maxima as before, but the early spring period is quite different. Feb.-Mar. shows three waves of feeding activity instead of the usual two, and mid-day becomes a maximum instead of a minimum. It is

reasonable to connect this three-wave feeding with the longer hours of daylight in February and March, and the question immediately suggests itself, is the autumn feeding on a similar pattern? We note that the Oct.-Nov. diagram has a rather flat section across the four hours of the middle of the day, with no very definite minimum. This might suggest a combination of three-wave activity at the beginning of the period with two-wave at the end.

My September figures were only for 1946, but by dividing the autumn season at October 15th, the following very suggestive figures were obtained :—

NUMBER OF ROBINS TRAPPED.

<i>Time</i>	7-8	8-9	9-10	10-11	11-12	12-1	1-2	2-3	3-4	4-5	5-6	6-7
Sept. 10-												
Oct. 15 ...	6	6	4	5	2	6	4	3	4	5	6	2
Oct. 16-												
Nov. 30 ...	2	7	10	7	6	4	4	8	10	9	2	1

Consideration of the September figures suggests not only that three-wave feeding is then operative, but also that early and late feeding is much more in evidence than in spring.

DISTRIBUTION OF DATA BY SOLAR TIME.

Except in so far as the birds may depend on human beings for regulated food supply, their habits must depend not on civil but on solar time. It is therefore advisable to examine the distribution of the trapping results with regard to the times of sunrise, solar noon, and sunset. The latter have been worked out for the approximate latitude and longitude of this station, 58° N x 4° W. Percentage results are given in Table III.

From these figures, the pronounced dusk-feeding habits of the Robin, both evening and morning, should be noted. Curiously enough, there were no trappings of Robins at all before sunrise and after sunset during February and March. The fact that these months are associated with pairing and song may suggest that the birds are engaged otherwise than in feeding at such times. (The spring Robin that taps on the window pane in early morning does not come for food !)

With the autumn Robins, the large percentage of birds coming in about sunset is worthy of note. At this season there are many evening migratory arrivals. Doubtless the condition of hunger and fatigue prompts the seeking of food before dark.

Taking the winter as a whole, we find that the Robin does half of its feeding before solar noon, and half after. Blackbirds, on the average do even more dawn feeding than Robins, but very little evening feeding. Their whole feeding day is earlier, as they

take 55% of their food before solar noon. Blue Tits have little or no crepuscular feeding, and their feeding day is somewhat later than that of the Robin.

A summary of results is given in Table IV.

TABLE III.
PERCENTAGES OF FEEDING IN SOLAR TIME.

Species and Season	Before sunrise	One hour after sunrise	Between an hour after sunrise and solar noon	Between solar noon and hour before sunset	One hour before sunset	After sunset	Total	
							a.m.	p.m.
Robin Oct.-Nov.	3	9	33	31	14	10	45	55
Robin Dec.-Jan.	9	14	27	32	9	9	50	50
Robin Feb.-Mar.	0	3	50	38	9	0	53	47
Robin Winter	4	8	37	33	11	6	50	50
Blackbird Winter	4	10	41	41	3	1	55	45
Blue Tit Winter	0	9	39	44	7	1	48	52

TABLE IV.
FEEDING TIMES.

Species and Season	Activity before sunrise	Activity after sunset	Maximum feeding times	Minimum feeding times
Robin Sept.-Oct.	—	—	8 a.m. 12-1 p.m. 5-6 p.m.	11 a.m.-12 2-3 p.m.
Robin Oct.-Nov.	medium	great	9-10 a.m. 3-4 p.m.	1 p.m.
Robin Dec.-Jan.	great	great	9-10 a.m. 3 p.m.	12 noon
Robin Feb.-Mar.	none	none	9-10 a.m. 12-1 p.m. 4 p.m.	10-11 a.m. 2-3 p.m.
Robin Oct.-Mar.	considerable	considerable	9-10 a.m. 3-4 p.m.	1 p.m.
Blackbird Oct.-Mar.	considerable	very little	10-11 a.m. 1-2 p.m.	11 a.m.-12
Blue Tit Oct.-Mar.	none	very little	10-11 a.m. 2-3 p.m.	12-1 p.m.

THE DISTINGUISHING CHARACTERS OF THE
STEPPE-BUZZARD

BY

K. H. VOOUS, D.Sc., P. A. HENS, F.M.B.O.U., AND J. G. VAN MARLE,
M.B.O.U.

THE eastern race of the Buzzard, known as the Steppe-Buzzard, *Buteo buteo vulpinus* Gloger, which breeds as far west in Europe as North Sweden, Finland, Lithuania, Poland, Rumania and Bulgaria, has been shown to occur as a bird of passage (and more rarely in winter) in Western Europe and has been obtained at least once in the British Isles.

Since the time when attention was called to the occurrence of the Steppe-Buzzard as a migratory bird in the Netherlands, the number of recorded specimens has been increased up to 31. Both plumage characters and measurements have been used as trustworthy subspecific criteria. However, it has become necessary to examine whether all literature records are reliable and to verify the distinguishing characters of the race *Buteo b. vulpinus* compared with typical *Buteo b. buteo*.

Material: Altogether 383 specimens have been examined, belonging to the Amsterdam Museum (39), Brussels Museum (77), Leiden Museum (158), coll. Hens (85), coll. Sillem-Van Marle (24); they comprise 203 Dutch and 80 Belgian birds. Further, 29 adult and 27 juvenile specimens of *Buteo b. vulpinus* in the Leiden Museum originating from the Dobrudsha, S. Russia, and the Caucasus have been examined.

Plumage characters of *B. b. vulpinus*. The well-known strongly developed individual variability of the Common Buzzard (*Buteo b. buteo*) makes it hard to give an exact plumage description of the two races, but we may recall the fact that Steppe-Buzzards can be recognized by the rufous or buffy-brown general coloration of upper- and under-parts, which is especially noticeable on the head and mantle. Moreover, head and mantle are often of a lighter yellowish brown coloration than the remainder of the body. The irregular cross-bars on the under-parts are mostly rufous brown, the under tail-coverts usually have rufous cross-bars, and the rectrices mostly have a rufous brown ground colour. Nevertheless, a pure greyish colour occurs at least in the central rectrices of a few adult specimens from Wladikawkas, Caucasus, which in all other respects are typical *vulpinus*.

In the course of this examination the name *vulpinus* will be applied only to those specimens that agree with the above plumage description, irrespective of individual dimensions.

Dark rufous brown Buzzards with a relatively dark brownish red head and neck, with dark brown instead of rufous brown cross-bars on the under tail-coverts, and extensive dark earthy brown bases to all small feathers of the upper-side represent the rufous

brown variety of the Common Buzzard: a verified Belgian breeding bird of this type has been examined by the first author in the Brussels Museum: ♂ ad. 19.v.1924, Faulx, Namur: wing 386 mm. In our opinion the ♀ ad. 17.ix.1916, Nijmegen, Netherlands: wing 397 mm., which has been referred by Van Oort (1926, p. 49) to *vulpinus*, is nothing but the rufous variety of *buteo*!

Juvenile birds of *vulpinus* in their first winter plumage may be distinguished from the adults by the different stage of their moult (see below). Moreover, they are distinctly longitudinally streaked on the under-parts (in some cases rather like the juvenile *Accipiter gentilis*: for example, ♀ juv. 10.xi.1908, Deurne, North Brabant: wing 351 mm., and ♀ juv. 16.ix.1919, Houthem, Limburg: wing 389 mm.). New feathers with cross-barring do not occur before the gradual moult of breast-feathers at the end of the second spring. All 29 Caucasian and East-European specimens, examined by the authors, showing distinct cross-barring of the lower breast and abdomen, proved to be adult. At all events, it appears that the adults show cross-barring at least at the base of the feathers.

As to the cross-barring of the tail: it appears that adult birds of *vulpinus* show a pronounced tendency to reduce the dark cross bars; when these are present they are absolutely smaller than those in the juveniles, and the terminal band is always much broader than the subterminal. Young birds, however, have more strongly barred tails, but in 19 of 27 juvenile birds from the Caucasus and E. Europe (=70.4%) the terminal black band was not broader than the more proximal ones; in the remaining 8 specimens (=29.6%) the tails were heavily banded and the distal bar was broader than the others. A one year old juvenile female from the Netherlands (1.vii.1916, Aalten, Overijssel: wing 355 mm.) was moulting the heavily banded juvenile tail-feathers, with a relatively narrow end-bar, for adult feathers with reduced cross-barring and broad end-bars.

Vulpinus: wing measurements (mm.):

Wladikawkas,	10 ♂♂:	353-358,	range of variability	5 mm.
Caucasus:	20 ♀♀:	338-400,	" " "	62 mm.
Netherlands	19 ♂♂:	349-392,	" " "	43 mm.
and Belgium:	8 ♀♀:	351-413,	" " "	62 mm.

In the literature West European Buzzards of the normal *buteo*-type and with rather small dimensions have been referred to *vulpinus*; it was of interest to examine whether this is justified or not. Accordingly, a great number of Dutch and Belgian specimens (330) of *buteo* plumage-type have been measured. Besides, from part of the material we have separated the measurements of the adult and juvenile birds in order to learn if the measurements of the juveniles are smaller than those of the adults. From this examination it appeared that moulting characteristics are the only reliable criteria for separating adult and juvenile specimens, at least in

birds with a *buteo* plumage-type. Both cross-barring and longitudinal streaking of the under-parts have been found in adult as well as in juvenile birds. Exceptions to the rule that cross-barring is an adult characteristic, and longitudinal streaking a juvenile one, have been found mostly in extremely light (streaked) and extremely dark (cross-barred) varieties of either sex and age.

The most trustworthy character to separate adults and juveniles following that of the different stages of moulting, is the relative breadth of the terminal dark band on the tail. In 90 of 95 adult specimens examined (94.7%) the distal band was broader than the proximal bands; although in a few specimens the difference was 1-3 mm. only, it was usually much more. In the extreme light or almost white varieties the terminal band may be relatively narrower, or may even be wanting (4.2%). In only one adult specimen (1.1%) was the terminal cross-band narrower than the proximal ones. From 99 juvenile birds 95 (=96.0%) have the distal tail-bands narrower or, more rarely, equal to the proximal ones. In one white specimen (1.0%) no band was found at all. In only 3 specimens (3.0%) was the distal tail-band 1-2 mm. broader than the proximal ones. In this respect two summer birds from the preceding year are of interest, as they are moulting their tail-feathers; the old and strongly abraded (juvenile) feathers have narrow, and the newly grown (adult) feathers have relatively broad distal cross-bands (♀: June 14, 1926; ♀: July 19, 1916)!

Moulting characteristics are easy to examine in the skin: adult birds moult their small feathers very gradually from the end of the summer up to fairly well on in spring. However, individual variability is rather pronounced: a freshly moulted plumage can be found in November (2nd year?) as well as in January or even as late as April. In most of these specimens one or two or more very old and strongly worn feathers of the preceding year can be detected among the new ones, especially among the upper wing-coverts and in the scapular region. The plumage of the juvenile bird is usually already strongly abraded in October and November; at all events all feathers are uniformly worn and fresh feathers do not appear to occur before the end of winter. Especially in February and later the juvenile birds have a very worn plumage, whereas that of the adults is rather fresh at this time of the year.

The following measurements of Dutch birds of absolute *buteo* plumage-type have been found:

Wing :	60 ♂♂ juv.	345-402,	average	377.0 mm.
	59 ♂♂ ad.	359-404,	„	384.5 mm.
	69 ♀♀ juv.	374-427,	„	396.3 mm.
	60 ♀♀ ad.	360-438,	„	401.1 mm.

From these it appears that the differences in dimensions between adults and juveniles are only very slight, although in the average measurements juveniles are smaller than adults.

As it does not appear to be necessary for subspecific examination to separate wing measurements of adult and juvenile *buteo*, our measurements of the wings of Dutch and Belgian birds of absolute *buteo* plumage-type can be summarized as follows :

166 ♂♂: 345 ; 356-409 ; range of variability 64 mm.

182 ♀♀: 360, 362 ; 370-428 ; 438 ; range of variability 78 mm.

These measurements should be compared with those of birds of *vulpinus* plumage-type given above. It then appears that no reliable differences in dimensions exist to warrant subspecific discrimination of migratory specimens on measurements only.

However, our measurements of Dutch and Belgian *B. b. buteo* do not agree with those given in literature :

Hartert (1913) : 50 specimens : ♂ 370-395 ; ♀ 385-400, rarely 410-415, 424 mm.

Witherby (1939) : 12 specimens : ♂ 370-395 ; ♀ 380-410 mm.

Niethammer (1938) : German breeding birds : 15 ♂♂ : 367 ; 375-391 ; 403 ; 15 ♀♀ : 384-425 mm.

For *B. b. vulpinus* the following measurements are given :

Hartert (1913) : 12 Livonian and 9 N. Russian and Rumanian specimens ("zimmermannæ") :

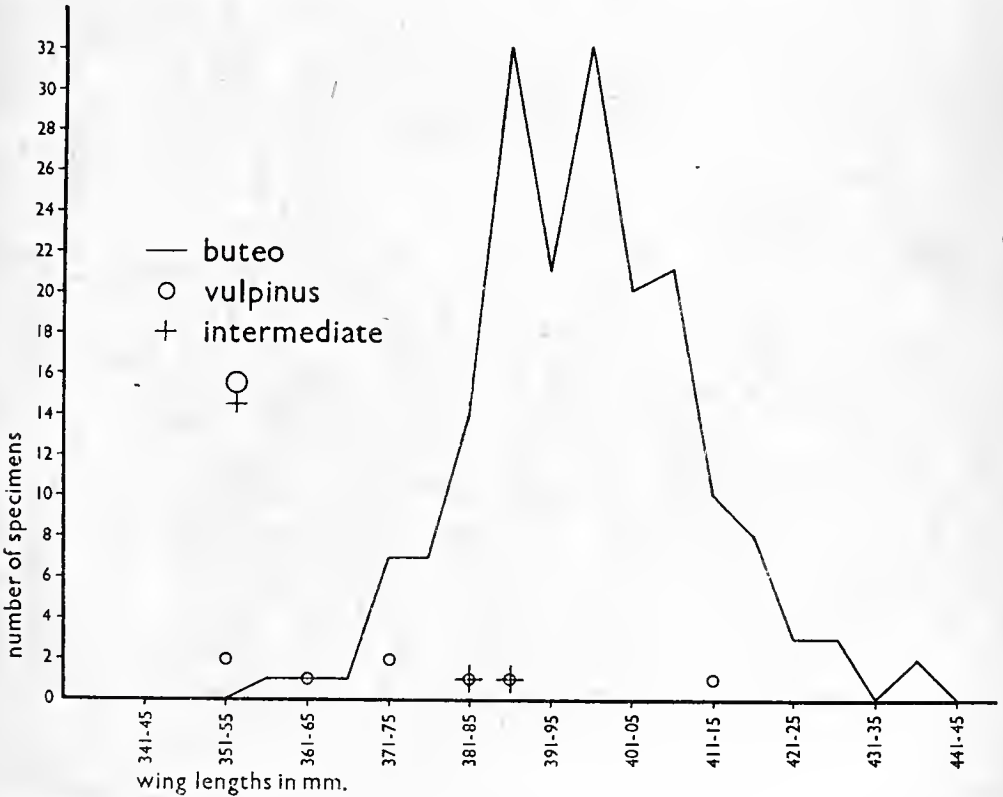
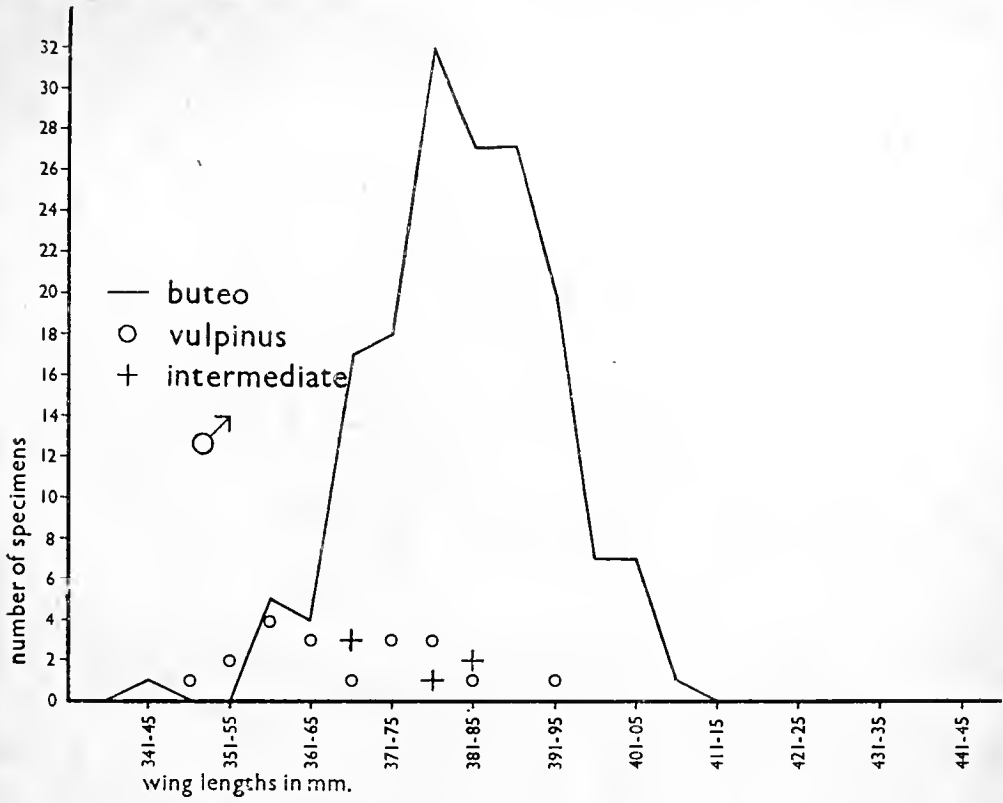
♂ 348-372 ; ♀ 354-405 mm.

50 Caucasian and W. Asiatic specimens ("desertorum") :

♂ 350-407 ; ♀ 340-390 mm.

From the above it appears (1) that no exact difference in wing length exists between *buteo* and *vulpinus*, although there is a general tendency in *vulpinus* to be a trifle smaller ; (2) that in literature no such small measurements of *buteo* have been recorded as those found by us in the Dutch and Belgian material. However, in our extensive material very large birds also occur, which go beyond the maximum of measurements in literature (♂ 409 ; ♀ 438 mm. !).

However, since Stresemann (1925) thought that in the transitional breeding zone between *buteo* and *vulpinus* hybrids should occur of which some might possess either the smaller measurements or the rufous colour-type, it was usual up to 1943 (Hens & van Marle, 1941, Voous, 1943) to refer rather small migratory Dutch Buzzards (especially juvenile specimens of common *buteo*-plumage) to intermediate East European *buteo-vulpinus* populations. Judging from the regular curvature of individual variability this seems to have been wrong ; both very large and very small specimens occur. It would be of much assistance, however, if British ornithologists would measure their native material to detect if such very small measurements of birds of a common *buteo*-type (e.g. ♂ 345 ; ♀ 360 mm. !) are to be found in Great Britain also. As true *vulpinus* appears to have been recorded in Great Britain only once (Sept. 1864, Everley ; cf. Witherby *et al.*, 1939) all British specimens with a normal *buteo*-plumage might be safely referred to *B. b. buteo*.



DIAGRAMS OF THE WING-LENGTHS OF 178 MALES AND 191 FEMALES OF DUTCH AND BELGIAN BUZZARDS.

In conclusion, 27 Dutch and Belgian migratory Buzzards should be preliminarily referred to *vulpinus* on account of plumage characters only; these were taken in the following months: Sept. (2), Oct. (5), Nov. (5), Dec. (1), Jan. (2), Febr. (2), March (2), April (6), May (0), June (0), July (2), Aug. (0).

To those records known already in the literature the following new ones have been added here:

Leiden Mus. : ♀ ad. i.ii.1940, Warmond, South Holland; wing 413 mm.

Leiden Mus. : ♂ ad. —.ii.1940, Vollenhove, Overijssel; wing 351 mm.

Brussels Mus. : ♂ ad. 14.iii.1946, Chantraine, Namur; wing 374 mm.

Brussels Mus. : ♀ juv. 14.v.1922, Remersdael, Liege; wing 386 mm.

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NOTES.

CARRION CROWS ATTACKING MAGPIE.

ON July 19th, 1947, whilst cycling near Heytesbury, Wiltshire, I heard some Magpies (*P. p. pica*) chattering, as though alarmed, in a hawthorn not far from the road. I turned and was just in time to see a Carrion Crow (*Corvus c. corone*) strike a Magpie to the ground and follow it down. The Magpie was a bird of the year but was a substantial size. The crow seemed to land astride the Magpie and was proceeding to attack it when it was alarmed, possibly by myself. It flew up and the Magpie made good its escape into the hawthorn where there were other Magpies, possibly members of the same brood. I then noticed that there were two Carrion Crows and it would seem, from the commotion that I had heard previous to witnessing the attack, that they were engaged in chivvying the Magpies.

E. M. CAWKELL.

"SMOKE-BATHING" OF JACKDAW.

MENTION of Starlings (*Sturnus v. vulgaris*) "smoke-bathing" (*antea*, Vol. xl, p. 340) leads me to record a similar behaviour on the part of Jackdaws (*Corvus monedula*) which I have not infrequently witnessed; but instead of perching on the lee side of chimney-pots as mentioned by your correspondent, the Jackdaws I saw hovered for about 5 seconds in the smoke coming from the chimney, often returning two or three times when they could no longer balance in mid-air. As I have seen this almost always in winter, I imagined that it might be a device adopted to get warm; the only time I have seen it happen in spring was when a fire was unexpectedly lit in the chimney in which the bird was nesting.

M. W. RIDLEY.

STARLING ROBBING MISTLE-THRUSH.

WITH reference to the note on Starlings robbing Blackbirds of worms (*antea*, Vol. xl, p. 340), I have seen on one occasion a Starling (*Sturnus v. vulgaris*) snatch one or more worms from the beak of a Mistle-Thrush (*Turdus v. viscivorus*) while the latter was standing presumably listening for further worms. The Mistle-Thrush did not show any reaction.

HENRY BOASE.

CHAFFINCH BUILDING SECOND NEST BEFORE FLEDGING OF FIRST BROOD.

IN the afternoon of May 16th, 1947, a female Chaffinch (*Fringilla cœlebs gengleri*) began to build a second nest in our garden at Kidlington, Oxford, before the young of the first brood were fledged.

The hen bird divided her time between feeding the two nestlings of the first brood and building the second nest. The cock also fed the young, but took no part in the building. The first of the two young flew at midday on May 17th, and the second in the early

morning of May 18th. Both male and female continued to feed the young after fledging, but the female alone built the second nest, in which the first egg of a clutch of five was laid on May 21st.

F. W. CHAMBERLAIN.

DISPLAY OF YELLOW BUNTING.

ON August 6th, 1947, a pair of Yellow Buntings (*Emberiza c. citrinella*) was observed displaying in a lane near Brewood, Staffordshire.

The male arched the wings well over the back and continually fluttered them. The crest was raised, and the tail was fanned to a remarkable degree. This was drooped to touch the ground, thus showing very prominently the chestnut and black rump. The bird strutted round in circles uttering a quiet churring note. The female was unfortunately just out of sight, and at this stage the birds were disturbed by a car.

This display appears to have been similar to that recorded by G. T. Rope and E. M. Cawkell, but the date appears unusually late.

L. SALMON.

[The display was evidently not identical with those to which our correspondent refers, as G. T. Rope (*Zool.*, 1913, p. 196) describes the wings as raised high above the back, "as a Redshank often does for a short time after alighting" and Major Cawkell (*antea*, Vol. xl, p. 212) also describes the wings as "held high above the back." —EDS.]

VARIANT YELLOW WAGTAIL IN SUSSEX.

ON April 27th, 1947, we found on Pevensey Levels, Sussex, a pair of "Yellow" Wagtails, the male of which was obviously of the variant form resembling the Siberian race or Sykes's Wagtail (*Motacilla flava beema*) which is discussed in the Supplementary Additions and Corrections to *The Handbook* (Vol. v, pp. 288-9). Its head was ashy blue-grey in colour with a white chin and a white eye-stripe. The ear-coverts were no darker than the forehead and crown. The birds were repeatedly seen in the same locality during May and on June 8th, the nest, containing five young, was found at the base of a clump of rushes by D. D. H. and G. des Forges.

D. H. BROWN AND D. D. HARBER.

RED-BREASTED FLYCATCHER IN NOTTINGHAMSHIRE.

ON August 26th, 1947, I noticed a small grey and white bird creeping about in a hop-covered hedge at the base of a line of poplar trees, on the borders of the Nottingham Sewage Farm near Burton Joyce. The bird appeared to have all the characteristics of a skulking warbler except that the tail was occasionally flicked upwards and spread out revealing a characteristic pattern. I followed the bird observing it for some time, and then threw a stone in the hedge, whereupon it flew up into one of the neighbouring poplars, where

better views were obtained. It appeared to be feeding on insects among the leaves but occasionally came into view on bare twigs.

During this period of observation I gained a complete picture of the bird. In size I estimated it to be slightly larger than a Willow-Warbler, some of which species were present for comparison; the whole of the upper-parts and wings were a brownish, mousey-grey colour, although there was a lightish cover over the secondaries, only apparent in flight as a slight transparency; the throat and under-parts were dull white. The most characteristic feature was the tail, which had a broad white patch on either side at the base separated by brown central tail feathers. These patches extended three-quarters of the length of the tail, the rest of which was brown. The underside of the tail was greyish but also showed a brown central bar with white at the base. The bill was small and sharp, brown in colour, and the legs appeared dark brown. No call notes or utterances were heard. In flight the only striking feature was the peculiar tail pattern, which was well displayed.

The weather at this time was warm and fine with a strong NE-E wind, and the migrants appearing were a few Pied Flycatchers, Whinchats, Redstarts, warblers and wagtails.

It is evident that the bird was a female Red-breasted Flycatcher (*Muscicapa p. parva*), a bird which does not appear to have been recorded previously in the county. R. J. RAINES.

REED-WARBLER IN PEMBROKESHIRE.

ON June 1st, 1947, a Reed-Warbler (*Acrocephalus s. scirpaceus*) was trapped on Skokholm Island in the garden, where it had previously been singing in the bushes. There are two previous records of this species in Pembrokeshire: one, Smalls Lighthouse, October 17th, 1908 (*Handbook Brit. Birds*) and one at Llanrhan, north of St. Davids, May 30th, 1929 (*antea*, Vol. xxiii, p. 38).

J. KEIGHLEY.

DISPLAY OF WREN.

AT about 9 a.m. G.M.T., on June 21st, 1947, while walking through a wood near Porlock, Somerset, I noticed two Wrens (*Troglodytes t. troglodytes*) displaying on a small rotten bough of a large beech about 12 ft. from the ground. I was first attracted by an unusual song, more prolonged and even more powerful than usual for a Wren but lacking the longer trills, as distinct from the warbling parts, of the usual song.

The male approached the female along the branch with neck extended vertically to a phenomenal degree, reminding me of photographs of the Bittern in alarm posture. The female responded by taking up the same position. The male then mounted the female and coition was attempted, but was presumably incomplete as the female was seen afterwards shivering her wings and tail in the invitatory posture when the male had flown off. The whole episode cannot have taken more than 15 seconds. J. A. NELDER.

SUB-SONG OF DIPPER.

NEAR Skipton, Yorkshire, on September 7th, 1947, I heard a particularly complete example of the sub-song of a British Dipper (*Cinclus cinclus gularis*).

The sub-song consisted of phrases which were joined together without any break. Each phrase was made up of the rapid repetition of a medium note and then a repetition of a higher note. Normally there was more repetition of the lower than of the higher note, and very occasionally the lower notes followed each other so rapidly that the effect was that of a sustained note. The number of repetitions varied from phrase to phrase, so that the song was far from monotonous. The song was sustained for half minute periods separated by quarter minute intervals, and was not audible beyond 7 yards.

T. SMITH.

EXCEPTIONAL FEEDING BEHAVIOUR OF KINGFISHER.

ON MARCH 7th, 1947, during prolonged severe weather at Ruddington, Notts., I saw a Kingfisher (*Alcedo atthis isipida*), probably attracted by the presence of other birds, feeding on bread scraps thrown on the ground. The bird perched on an adjacent post, from which it dropped steeply down to snatch a piece of bread and return to its perch, where the food was shaken two or three times before swallowing.

This performance was observed three times, after which the bird flew away and was not seen again. The nearest stream, frozen at the time, was a mile away. I do not think such behaviour has been recorded before, and it may therefore be of interest. As it may be thought that the bird was a Nuthatch (*Sitta europæa*), which in similar circumstances has sometimes been mistaken for a Kingfisher, I may add that I am thoroughly familiar with Kingfishers. The bird was plainly seen and I can state positively that the following characteristics were expressly noted: stout strong bill as compared with Nuthatch; blue-green upper-parts, white patch on each side of neck, orange-brown ear-coverts and under-parts; red feet and legs. There was thus no possible question of the bird's identity.

H. BARLOW.

SNOWY OWL IN CO. GALWAY.

ON September 6th, 1947, I observed at close quarters through binoculars an adult Snowy Owl (*Nyctea scandiaca*) on the moor near Lough Boliska, north of Spiddal, Co. Galway. I first disturbed the bird from an out-crop of rocks, then watched it at rest on a large boulder and later on the open moor. From the very sparse black markings on the upper-parts and entire lack of any on the head and neck I concluded that the bird was a male. Previous records of this owl in Co. Galway are given in *Brit. Birds*, Vol. xl, p. 54.

Occurrences in Ireland in September are quite exceptional.

ROBERT F. RUTTLEDGE.

SHORT-EARED OWL TAKING STOAT.

ON October 1st, 1947, on Fremington Marsh, North Devon, I flushed a Short-eared Owl (*Asio f. flammeus*) from the still warm body of a female Stoat (*Mustela erminea*). The Stoat had deep claw cuts on its back and deep wounds over the eyes and on the neck. The Stoat is not recorded in *The Handbook* as being a normal prey of the Short-eared Owl. . . . GEOFFREY H. GUSH.

BREEDING OF HOBBY IN NORTH MIDLANDS.

FROM August 5th to 10th inclusive, 1930, I had the pleasure of frequently watching the movements of three young Hobbies (*Falco s. subbuteo*), often within some 40-50 yards in a locality on the Cheshire-Derbyshire border near where the late Mr. T. A. Coward recorded a nest (early in the century, I believe).

The birds when first found had not long left the nest, I think, and good views were obtained. They were not shy, and more than once took up a perch on trees overhanging the road through a glen which led down from extensive moorland to lower country.

The chief haunts were two or three rows of a few Scots pines each, scattered on slopes of tall moor-grass mixed with bracken.

The parent birds were extremely wary, coming in very suddenly, probably from a height, so that no good view of them was obtained. A Hobby was seen just at that spot on May 9th, 1907; and a pair in more than one summer during the intervening years. Several old nests of Carrion Crows and Sparrow-Hawks were near, though the one in use was not located. . . . H. G. ATTLEE.

UNUSUAL NUMBER OF HEN-HARRIERS IN ARGYLLSHIRE

ON September 14th, 1947, in the Pass of Brander, Argyll, my wife and I saw a pair of Hen-Harriers (*Circus c. cyaneus*) near the point where the loch ends and the river begins. We had a beautifully clear view of them and the blue-grey male with its large white rump actually flew within a few feet of the car. The birds were under observation for some 10-15 minutes. Eventually they made off in a westerly direction towards the coast. Although we went through the pass almost daily throughout the month, we saw no others there, but had a close view of a female or young bird on the 21st a few miles further west between Taynuilt and Connel. It had settled on a telegraph post and we passed it very slowly at a distance of only a few feet.

On September 17th we saw at least six (and possibly a seventh) near Loch Restil, between Glen Kingloss and Glen Croe in the same county. Two had similarly settled on telegraph posts, and the others were quartering the ground with the characteristic flight of the species. These were all females or juveniles. . . . GEORGE WATTS.

GREY LAG GOOSE IN LONDON AREA.

ON February 12th, 1947, I saw two grey geese swimming on the most northern of the Walthamstow reservoirs (Essex) at about

10 a.m. Through a telescope I could see that their beaks were rather large and orange-red or pink all over and that there was no white on the forehead. The feet could, of course, not be seen, nor was visibility good enough for me to form an impression of distinctive value of their general body colour. I have no doubt the birds were wild for they rose when I was still a good way off and a very pale grey area on the wings was then noticeable (the tail showed the usual pattern of grey geese, a white terminal band, broad dark sub-terminal band and white rump). They circled once gaining height and then disappeared towards the south. The colour of the beak and pale grey on the wing, which was very marked in comparison with the wing of the White-fronted Goose (*Anser a. albifrons*) with which I am fairly familiar, established the birds seen as Grey Lag Geese (*Anser a. anser*). This species has not been recorded in the London area since 1919, when a single bird was seen on February 7th and 8th at Snaresbrook, Essex. E. O. HÖHN.

GARGANEY IN WESTMORLAND.

ON May 4th, 1947, a male Garganey (*Anas querquedula*) was observed in company with seven Mallard (*Anas p. platyrhynchos*) on the Kent Estuary opposite Sandside, Westmorland. The bird was about 80 yards from the shore but was viewed through a telescope in excellent light. The Garganey was in breeding plumage, the eye-stripe and the pale flanks being very prominent.

As *The Birds of Lakeland* gives no record of Garganey in Westmorland, this may be of some interest. R. J. F. TAYLOR.

WIGEON NESTING IN WESTMORLAND.

ON June 19th, 1947, two friends and myself saw a duck Wigeon (*Anas penelope*) with small young on an east Westmorland tarn. I had strongly suspected nesting at the same place in previous years, particularly in 1946, but this was the first time that the ducklings were actually seen. I am, of course, thoroughly familiar with Wigeon, and the characteristics of the parent bird, including the distinctive-looking head and bill, as compared with other surface-feeding ducks, and the wing-pattern in flight were well seen.

M. GARNETT.

CORY'S SHEARWATER OFF ABERDEENSHIRE.

ON September 10th, 1947, when at sea about one and a half miles north of Aberdeen, I saw a large shearwater fly past the boat in a northerly direction. In the first instance it was too far away for its species to be determined. Presently, however, it was observed to turn and fly back towards the boat, which it passed at quite close quarters. With the aid of field-glasses it was easy to see by the pale bill, grey-brown crown, nape and sides of the head that the bird belonged to the species *Puffinus kuhlii*. Although it was not possible to determine the sub-species, it seems likely that the bird was of the North Atlantic form, *P. k. borealis*.

The Handbook gives no instance of the occurrence of this species off the coast of Scotland.

R. N. WINNALL.

[We propose to adopt the term Cory's Shearwater, used in America, for this bird, for which no species name is given in *The Handbook*, where the two sub-species (inseparable in life) are called the Mediterranean and North Atlantic Shearwaters respectively.—EDS.]

UNUSUAL NEST-SITE OF STOCK-DOVE.

While on Berner's Heath, near Elveden, West Suffolk, on September 16th, 1947, we discovered an unusual nest site of a Stock-Dove (*Columba oenas*).

Scattered over the heather-covered heath were several pits and craters, made by the Army in the chalk. In one that was inspected there were boards most of the way down the sides; platforms were built at intervals alternately down two of the sides, leaving a gap about one foot wide straight to the bottom. The pit was 35 to 40 feet deep and 6 feet square.

On one platform, 23 feet down, was a Stock-Dove's nest, with two young Stock-Doves. These were unable to fly, but were well advanced in age. Their crops were full. The nest was a scrape in the soil and rubble that had collected on the boards, and around the edge was a mass of droppings so that the centre of the nest was about 3 inches deep.

About 3½ feet above the nest, on a ledge, was a cold egg and a broken one, and perhaps the remains of another, all Stock-Dove's. No adult Stock-Doves were seen about the actual pit, but many were seen near by.

DAVID V. BUTT AND ANTHONY E. VINE.

[There are a number of records of nesting in wells.—EDS.]

LARGE NUMBER OF WHIMBREL INLAND.

ON September 21st, 1947, I watched a flock of approximately 100 Whimbrels (*Numenius ph. phæopus*) resting in a half cleared turnip field, with about 75 Lapwings (*Vanellus vanellus*) near Wylam, Northumberland.

A very strong westerly wind was blowing at the time and the birds kept to the shelter of the turnips, heads to the wind, until I was within 30 ft. of them. Two or three Curlews (*Numenius a. arquata*) joined the flock, thus making the shorter bills and light head stripes of the Whimbrels very obvious. I examined the flock at leisure with binoculars, in a good light, for ten minutes. The birds behaved as though fatigued and even the Lapwings were disinclined to leave the ground.

Apart from the unusual size of the gathering, it is interesting to note that this locality is 20 miles from the coast, though only two miles from the river Tyne, which the flock may have been following. I have not seen more than two Whimbrels together here before.

G. R. MOUNTFORT.

TWO TYPES OF "INJURY-FEIGNING" BY SNIPE.

A SNIPE (*Capella g. gallinago*) was flushed near Nottingham from a nest containing one egg at 7 p.m. on May 21st, 1944. At 9 p.m. on the same evening the nest contained two eggs. On two of the several subsequent occasions when the bird was flushed, June 5th and June 10th, it gave an "injury-feigning" display. On the first occasion the bird squattered fluttering for some distance along the marshy, shallow, meadow drain by which it was nesting and then flew normally. It was again flushed in normal flight, 30 yards from the nest. On the second occasion the bird fluttered across the marshy tract to another drainage furrow, where it lay spreadeagled with wings opened and tail fanned, at first fluttering, then still. On being approached it flew away strongly in the usual manner.

R. J. LYE.

[For another recent instance of "injury-feigning" by this species, see *antea*, p. 27.—EDS.]

TEMMINCK'S STINT IN PEMBROKESHIRE.

ON August 25th, 1947, an adult Temminck's Stint (*Calidris temminckii*) in summer plumage was seen feeding in company with a small party of Common Snipe (*Capella g. gallinago*) at a large puddle, used for depositing rubbish, in the marsh behind Tenby, Pembrokeshire.

The length, estimated while the bird was standing beside a Snipe, was judged to be between 5 and 6 inches. The beak was fairly short and straight. The upper-parts were a greyish-brown, the feathers on the back having dark centres, and the head being slightly paler than the rest of the upper-parts. The upper breast was very finely speckled with brown, while the lower breast, abdomen, and vent were pure white. The outer tail-feathers on each side were white also. The colour of the legs, though not recorded at the time, is believed to have been greyish. The bird was seen in flight two days later on August 27th, when the thin white wing-bar and the dark line down the white upper tail-coverts were noted.

The bird on each occasion was watched at a range of about 25 yards by my mother and myself through 8 x 25 binoculars, with a bright sun behind us, for two hours at a time.

The bird was very fearless and was observed to swim across the puddle when out of its depth. No call note of any description was heard.

I made acquaintance with this species in Norfolk the previous May, and am also quite familiar with the Little Stint (*Calidris minuta*).

The Handbook of British Birds gives no record of this species for any part of Wales, except the Dee estuary. MAURICE LARKIN.

SANDERLING IN WARWICKSHIRE.

THE spring of 1947 was marked by the recording of several visits of the Sanderling (*Crocethia alba*) to a Warwickshire marsh and

reservoir, although the species had not previously been recorded in the county.

Mr. R. W. M. Lee obtained the first county record when he watched a Sanderling at Baginton Marsh on March 12th. Seen at about twenty feet range, this bird appeared to be a rather stocky short-necked bird of Dunlin size, with a short, straight, black bill and jet black legs. The whole of the under-parts were pure white, and the upper-parts were distinctly mottled with buff. The crown was darker than the sides of head or nape and the bird therefore had a collared appearance. This appears to have been a young bird.

Since that date adults in winter plumage were seen by several observers at Bartley Green Reservoir, Birmingham. One on April 3rd was followed by one on April 27th. Two were present on the 28th. In all cases the light plumage, still grey on the upper-parts and pure white on the under-parts, was seen to contrast with the jet-black legs and the short, straight, black bill.

On May 25th a further bird, which was in almost full summer plumage, was seen there. This bird was similar to the others in size, form and behaviour, but the upper-parts, whole of the head, neck and breast were mottled brown and black.

It is interesting to note that bad weather or low water were not responsible for the appearance of all these birds. The last bird appeared in fine weather at high-water and fed complacently within eight yards of Bank Holiday trippers. G. W. RAYNER.

AVOCET IN YORKSHIRE.

WHILE at the Yorkshire side of Tees-mouth during the afternoon of September 10th, 1947, a companion and I had a good view at about 30 yards range of an Avocet (*Recurvirostra avosetta*).

The long, black, upturned bill was conspicuous and the clear white plumage and strong black markings showed the bird to be an adult.

A west wind of almost gale force was blowing at the time and along with other birds, chiefly Herring-Gulls, the Avocet was sheltering behind a ridge of grass-covered sand-hills and near a pool of water.

A search was made, but no other bird of the species was seen. It should be noted that the gale had been blowing for about twenty-four hours, a condition which probably accounted for the presence of the bird at Tees-mouth. J. P. UTLEY.

SEX DISTINCTIONS IN OYSTER-CATCHER.

IN a paper on the Breeding of the Oyster-catcher (*antea*, Vol. xxxiii, p. 191) it was noted that at one or two nests of the Oyster-catcher (*Hæmatopus ostralegus occidentalis*) the sexes could be distinguished quite easily, since the hen not only had a longer bill but also had a proportionately longer patch of yellow at the distal end. Further observations in 1946 and 1947 on a large number of

pairs suggest that this latter feature is a constant difference between the sexes, and it has been observed that the plumage also differs quite noticeably. The black part of the cock's plumage is glossy jet black, whereas in the hen it is dull, sooty brown. It was found that the two distinctions, in bill and plumage, always went together and, at least during the breeding season, it seems quite possible to distinguish the sexes provided one has an adequate view of these features. E. J. M. BUXTON AND J. KEIGHLEY.

CREAM-COLOURED COURSER IN CUMBERLAND.

A CREAM-COLOURED Courser (*Cursorius c. cursor*) was shot on Grune Point, Skinburness, on the Cumberland shore of the Solway Firth, on October 15th, 1947, by Mr. John Stockdale, who has given it to the Carlisle Museum. It proved to be an adult male.

This bird, the second of the species to be recorded for Cumberland, was all alone on grassy ground at the tip of the point and, so far as is known, had not previously been seen in the district. It was described as having a woodcock-like flight when flushed.

The stomach contents, comprising the eighty-nine small creatures here listed, add to the variety of food given in *The Handbook*.

MOLLUSCA : GASTROPODA. *Littorina saxatilis* (Oliv), 2.

ARACHNIDA : OPILIONES. Harvestmen, 3.

INSECTA : DERMAPTERA. Earwigs (*Forficula*), 4.

COLEOPTERA. Rove Beetles (*Philonthus varius* Gyll.), 2, Weevils (*Sitona flavescens* Marsh), 62, Weevil (*Alophus triguttatus* F.), 1, Click Beetle (*Corymbites* sp.), 1.

HYMENOPTERA. Red Ants (*Myrmica ruginodis* Nyl.), 11.

DIPTERA. ? Species, 2.

LEPIDOPTERA. Larva of a noctuid moth, 1.

There were besides, four small pieces of grit.

All the food had been freshly taken, one of the molluscan shells still retaining remains of the animal, and many of the beetles being more or less entire.

The molluscs were very kindly determined for me by Mrs. N. F. McMillan, and the insects by Mr. F. H. Day, F.R.E.S.

ERNEST BLEZARD.

GULL-BILLED TERN IN NORFOLK.

ON May 8th and 9th, 1947, in company with Mr. and Mrs. G. C. Rose, I observed a Gull-billed Tern (*Gelochelidon nilotica*) feeding over a ploughed field at Salthouse, Norfolk. In appearance it somewhat resembled a Sandwich Tern (*Sterna sandvicensis*), but had an entirely black bill, which was shorter and heavier than in that species; it was generally more compact in appearance and in flight more leisurely. Its call sounded like "kuck, kuck, kurr" (probably the "ka-huk, ka-huk" of *The Handbook*). C. K. JAMES.

SPOTTED CRAKE IN CORNWALL.

I AM aware of no record in Cornwall of the Spotted Crake (*Porzana porzana*) since the Cornwall Bird Watching and Preservation Society was founded in 1931, so that the following occurrence may be of interest.

Mr. R. J. Beswetherick reports that on August 6th, 1947, in broad daylight, he identified a Spotted Crake while standing in a small stream at the edge of a marsh near Bude. He first glimpsed what appeared to be a small brown animal disappearing in thick vegetation about three yards away. Shortly afterwards, it approached quite fearlessly and passed within two inches of his boot, feeding as it went and flirting its tail at each step. He could see every detail of the bird—"its white-spotted head and neck, greenish red-based bill, long olive-green legs and brownish upper parts with black centres to feathers and white streaks and spots on back."

B. H. RYVES.

"INJURY-FEIGNING" OF WILLOW-WARBLER.—"Injury-feigning" by the Willow-Warbler (*Phylloscopus t. trochilus*) is of rather infrequent occurrence. Mr. E. M. Cawkell informs us that on May 20th, 1947, a boy from his school in Wiltshire visited a nest of this species containing young, and as the bird left it stumbled and trailed its wing in the regular "injury-feigning" manner.

CLIFF-BREEDING OF HOUSE-MARTIN IN KINCARDINESHIRE.—Mr. R. E. Moreau informs us that he found a colony of House-Martins (*Delichon u. urbica*) in 1947 with at least three nests on the cliffs at Muchalls, between Stonehaven and Aberdeen, Kincardine. Three cliff-breeding sites between Montrose and Stonehaven were recently recorded by Mr. P. Wayre (*antea*, Vol. xl, p. 159).

BLACK-HEADED GULLS BREEDING IN CAMBRIDGESHIRE.—A colony of Black-headed Gulls (*Larus r. ridibundus*) was found by Mr. A. E. Vine on the sugar-beet factory settling pond at Ely, Cambridgeshire, on June 12th, 1947. It was estimated that there were about seventy-five nests and some hundred and fifty birds present; a number of young was noticed. It is thought that the birds also bred there in 1946.

GREAT BLACK-BACKED GULLS DIVING FOR FOOD.—Mr. Maurice Larkin sends us details of large numbers of Herring-Gulls (*Larus a. argentatus*) and lesser numbers of Great Black-backed Gulls (*L. marinus*) diving for waste scraps of fish lying in water 2-3 feet deep off the jetty at Tenby, Pembrokeshire. The birds would leap into the air and plunge into the water, completely submerging. At Pill, in the same county, on January 19th, 1948, Messrs. J. H. Barrett and P. J. Conder and Miss P. N. Higginson observed a single adult Great Black-back behaving in a similar manner, flying up to about 8 feet and hovering clumsily before dropping into the water.

Usually the body was only just submerged and very little of the primaries was covered, but on two occasions only the extreme wing tips remained visible and the bird was below for about 3 seconds. This habit is locally regular amongst Herring-Gulls, and Mr. J. E. Flynn has reported to us (Supplementary Additions to *The Handbook*, Vol. v, p. 304) that he frequently observed Great Black-backs diving for fish at sea. We have, however, no records for the latter species of the habit being observed close to land, although no doubt favourable conditions are all that are needed to evoke it.

RINGED PLOVER WITH FIVE EGGS.—Mr. E. L. Roberts reports finding a nest of Ringed Plover (*Charadrius h. hiaticula*) with five eggs on the Norfolk coast on May 30th, 1947.

REVIEWS.

LOCAL REPORTS.

Ornithological Record for Derbyshire, 1946. Compiled by W. K. Marshall.

This publication gives evidence of considerable activity among Derbyshire bird-observers, and includes many interesting notes. To the "complete list of birds recorded in the county up to 1944," (these are the words of the Report) and printed by the Derbyshire Arch. and Nat. Hist. Society, additions were made in 1945 and in 1946 seven more were added: Grey-Lag, Scaup, Whimbrel, Knot, Grey Plover, Black Tern and Kittiwake. It must, however, be pointed out that all these are included in Whitlock's '*Birds of Derbyshire*' (1893) and that specimens of five of them are stated to have been shot and examined in the county. Whitlock's record of the Kittiwake's frequent occurrence in the past is, however, hardly convincing. The 1946 Report includes an interesting note on the nesting of the Robin and excellent intimate studies with photographs of Redstart, Kestrel and Jay from the hide; the fledging period of Redstart was found to be 16 and of Kestrel 32-3 days. Early dates of arrival are given for Yellow Wagtail (March 26th), Redstart (March 31st), and Sand-Martin (March 13th) and May 23rd was a late date for Fieldfare. A harrier seen on October 19th and 27th is recorded as an undoubted Hen-Harrier because of the date on which and situations in which it was seen, but with no other evidence of its identity than that it was in "fine blue-grey plumage"; probability and certainty are not identical and the record cannot be accepted as it stands. Indeed the date is not even outside the ordinary limits for Montagu's Harrier. A Firecrest is recorded at Repton on March 11th, "identified by call-note and then seen at close quarters." But fuller evidence than this should have been given. A.W.B.

The Peregrine: a publication of the Manx Field Club, Vol. i, No. 4, Jan., 1947.
Edited by K. Williamson and W. S. Cowin. 1s. 6d.

This report of the activities of members of the Manx Field Club contains a valuable note on entomological discoveries in the island, but is mainly concerned with birds. A useful paper by K. Williamson on the west coast movements of the Black Redstart shows that it is a regular visitor to the Isle of Man, that the majority are seen in early or mid-November, that some are "partial-winterers" but that few occur in spring, and that it has been a more frequent visitor in recent years. A wagtail roost at Ramsey, which has been known for many years, is described in some detail. J. J. Gill, the author of this paper, considered that all of 150 counted in mid-December, 1942, were White Wagtails and implies that some at least were of that form. If so, this

is a startling addition to our knowledge of the status of this sub-species in the British Isles ; according to *The Handbook* it returns on autumn migration from mid-August to early October and there has hitherto been no evidence whatever of its occurrence in winter. Yet no evidence is afforded in support of this astonishing conclusion and it is passed without editorial comment. There are other notes on the status of the Hawfinch—a rarity in the island, the nesting of a Swallow in a sea-coast cave, and the visit of an adult Glaucous Gull (with photograph) at Ramsey. The most interesting recovery of a ringed Manx bird was that of a Fulmar found in Lincolnshire 20 days after it was marked. A.W.B.

The Lowestoft and North Suffolk Field Naturalists' Club : First Annual Report.

We are glad to welcome this new report issued by the above recently formed club and wish it could extend its activities to the whole of Suffolk. The absence of a regular report for this important county is regrettable. The present report is stated to cover the period March 1st, 1946, to February 28th, 1947. May we hope that the next number will perhaps be arranged to cover up to December 31st only, so that future issues may cover a normal calendar year?

Three pairs of Marsh-Harriers were present in the area during the summer and a female wintered in the neighbourhood of Oulton Broad. A pair of Montagu's Harriers reared two young in north-east Suffolk. A second cock was seen on one occasion in June. Two Bitterns were booming at Oulton Broad in the spring and at least one brood was reared. Four Spoonbills were present on the coast through most of June and the whole of July. A colony of Woodlarks was located at Lowestoft, where the species has apparently not been met with previously. A record of at least one and probably four Crested Larks seen on May 16th is well and carefully authenticated ; the locality is not given. The Kentish Plover records for Breydon mentioned in the Norfolk report (*antea*, Vol. xl, p. 384) appear again here on the authority of the same observer, but whereas the Norfolk report records two on May 12th, the present publication only mentions one. As two of the observers are Chairman and Secretary respectively of the Lowestoft Club we imagine their version must be correct, but the discrepancy should be cleared up. A record of an immature Iceland Gull at Lowestoft may be correct, but more evidence is obviously needed in view of the facts recently recorded (*antea*, Vol. xl, pp. 369-373). Records of two probable Northern Bullfinches on November 24th, a Firecrest found dead on the shore on October 24th, and a Whooper Swan on the unusual date of August 10th may also be mentioned.

LETTERS.

CARRION CROWS TAKING FOOD OFF WATER.

To the Editors of BRITISH BIRDS.

SIRS,—In Vol. xl, p. 245, you say that the taking of food from the water by Carrion Crows (*Corvus c. corone*) has apparently not been "previously recorded in our ornithological literature." I have recently had occasion to search the literature for London, and can offer you the following references :

1. Prof. C. E. Raven (*English Naturalists from Neckam to Ray*, 1947, pp. 193-4) quotes William Harrison's *Description of England* (1577) for an account of this habit among the crows of "great rivers (as the Thames for example)."

2. W. H. Hudson (*Birds in London*, 1928 ed., New Readers Library, p. 43) gives a good description of the habit as observed among Carrion Crows on the Thames in London.

3. A. D. Webster (*The Regent's Park and Primrose Hill*, 1911, p. 47) mentions that Carrion Crows have several times been seen to take ducklings off the water.

4. Miss P. Barclay-Smith (*Report of Committee on Bird Sanctuaries in Royal Parks (England and Wales)* for 1932, p. 12) records the same thing with young Mallards and Moorhens in Greenwich Park. R. S. R. FITTER.

[We are much indebted to Mr. Fitter for drawing attention to these records, though it may be pointed out that with the possible exception of No. 2 none of the above sources of information would come under the heading of "ornithological literature," and outside this field it is of course impossible to keep track of references to birds in every publication. It might be noted also that the original correspondence was primarily concerned with the picking up of inanimate food floating on the water, which is in a slightly different category from the seizing of young waterfowl. In any case it is now amply established that the former habit, long known on the Continent, is also not uncommon here. Mr. H. G. Attlee also informs us that he has observed it on the Thames at Kew and, with reference to bread thrown to gulls, in St. James's Park.—EDS.]

THE GAIT OF BUNTINGS.

To the Editors of BRITISH BIRDS.

SIRS,—Since I drew attention to an account by the late J. Whitaker of a Yellowhammer (*Emberiza citrinella*) running across a road (*antea*, Vol. xl, p. 256) I have twice been fortunate enough to see individuals of this species run. On July 29th, 1947, when I was driving from Oxford to Northampton with Prof. R. Brambell and Mr. J. S. Barrington we all saw a small long-tailed bird run swiftly across the road in front of the car, and, as we passed it, saw that it was a cock Yellowhammer. On November 9th, 1947, when Mr. J. K. Adams and I were driving near Ewelme, Oxon., a Yellowhammer ran swiftly part way across the road in front of us and before reaching the other side, which was unfenced, spread its wings and flew off.

On October 9th and 10th, 1947, I had the opportunity of watching a party of four Little Buntings (*Emberiza pusilla*) on the Isle of May, in company with Mr. and Mrs. C. W. Holt and Mr. F. A. Bak. As *The Handbook* gives no information as to the gait of this species we paid particular attention to this point. The birds were feeding on rocky ground interspersed with tussocks of thrift and coarse weeds. When passing from one tussock to another they undoubtedly hopped, but much of their time was spent on the ground between the tussocks, apparently picking up fallen seed. When feeding in this way they crouched very low on the ground, their attitude reminding me of Skylarks, and they moved forward so slowly and steadily that it seemed certain that their legs must be moved alternately, though it was impossible to see this. On one occasion they flew off to a little distance and alighted on some rocks, one of them settling in full view on one end of a flat rock. Mr. Bak and I were both watching it through our field-glasses when it ran very swiftly across the flat surface of this rock. These observations increase the probability that all buntings run on level surfaces. I have now observed this habit in four species of *Emberiza* (*E. calandra*, *E. citrinella*, *E. pusilla* and *E. schaeniclus*) and running is known to be the normal gait in *Calcarius* and *Plectrophenax*. It seems probable that members of the African genus *Fringillaria*, closely allied to *Emberiza*, also normally run on smooth surfaces. Layard (*Birds of South Africa*, 1875-1884, p. 489) says of the Cape Bunting (*Fringillaria capensis*) that "it frequents low bushes and rocks, creeping about the former, and running up the latter." Priest (*Birds of Southern Rhodesia*, 1929, p. 11) says of the Lark-like Bunting (*F. impetuana*) that "in habits they greatly resemble the larks, as they run and crouch down in the grass when disturbed." Hume (quoted by Dresser, *Birds of Europe*, Vol. 4, 1871, p. 200), writing of the Striped Bunting (*F. striolata*), whose habits he observed in N.W. India, says, "it is pleasant to watch a pair running and hopping about on the ground."

W. B. ALEXANDER.

NOTICE TO CONTRIBUTORS.

British Birds accepts papers and notes dealing with original observations on the birds of the British Isles and Western Europe or, where appropriate, on birds of this area as observed in other parts of their range. Review articles on subjects of current ornithological interest will also be considered.

Contributors are asked to observe the following points, attention to which saves the waste of much editorial time on trivial alterations.

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Notes should be drawn up in as nearly as possible the exact form in which they will be printed, with signature in BLOCK CAPITALS, and the writer's address clearly written *on the same sheet*. If more than one note is submitted each should be *on a separate sheet* with signature and address repeated. Though suitable headings and scientific names can be added by the Editor, if necessary, they should be inserted by authors as far as possible. Communications should always be as concise as possible, though reasonable detail can be given where this is important. Notes or records of subsidiary importance may be abbreviated or otherwise modified by the Editor for inclusion in the section of "Short Notes." Maps or graphs must be *neatly* and *boldly* drawn in Indian ink, with due allowance for reduction when necessary.

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Notes and papers for publication and other communications of strictly editorial nature may be addressed direct to the Editor of *British Birds*, 9, Marston Ferry Road, Oxford. Enquiries or requests for information not immediately related to material for publication must be accompanied by a stamped and addressed envelope.

Short notes accepted for publication without material alteration are not acknowledged by post except by special request, but proofs are submitted to the writers in due course. Authors of papers receive 20 separate copies free of charge. Any additional separates required must be ordered when returning the proofs and be paid for by the author.

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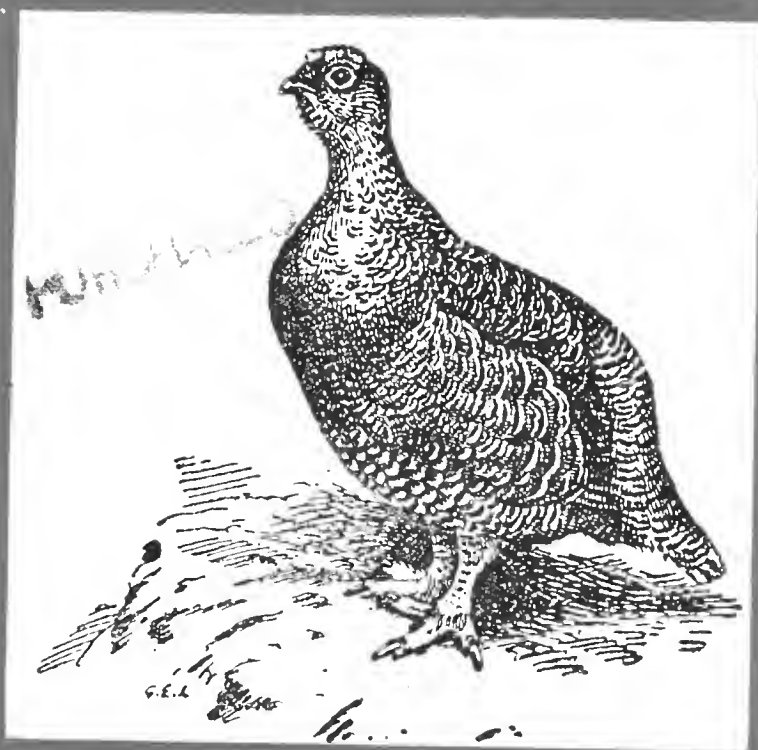
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FURTHER NOTES ON CLUTCH AND BROOD SIZE IN THE ROBIN

BY

DAVID LACK

(Edward Grey Institute of Field Ornithology, Oxford).

INTRODUCTION.

THE following paper on the breeding biology of the Robin (*Erithacus rubecula*) is a sequel to that published earlier (Lack, 1946), knowledge of which is assumed. In addition to nesting records for 1946, a number of additional records were received for past years. As before, the basic data are deposited at the Edward Grey Institute. I am extremely grateful to the large number of observers, members of the British Trust for Ornithology and others, who have again helped in the enquiry, and without whose help it could not have been undertaken adequately. The enquiry is now closed.

BREEDING-SEASON.

Sixty-seven clutch records sent by H. N. Kluijver, together with those received previously, make it possible to assess the breeding season in Holland. As would be expected, breeding occurs later than in Britain, but earlier than inland in Europe at a similar latitude, in North France, Germany and Switzerland. The bearing of this on the relation of day-length to gonad development was discussed in the previous paper.

TABLE I. Breeding-Season in Holland.

Region.	England and Wales.	Holland.	North France, Germany, Switzerland.
March	8%	—	—
April 1-28	49%	36%	16%
April 29-May 26	29%	45%	58%
May 27-June 23	11%	13%	16%
June 24-July 21	2%	5%	11%
No. of clutches	1,091	108	106

NOTE—Compare with Table III of earlier paper.

POSSIBLE ERROR DUE TO PREDATION.

In the Yellowhammer (*Emberiza citrinella*), Parkhurst and Lack (1946) showed that average clutch-size was slightly higher for nests found with fresh eggs than for those found in an advanced state of incubation. Presumably, a small boy or other predator had in some of the latter cases removed one egg before the nest was found by the recorder. As the clutch records for the Robin include many found only after incubation had started, it seems desirable to test for the possible error thereby introduced. For this purpose, one may compare the average size of the clutches used in the hatching enquiry, all of which were found during the laying period, with all others submitted during the investigation. The results, set out

in Table II, show that the difference between the two averages is negligible, hence this possible source of error may be ignored.

TABLE II. Clutch-size and Time of finding of Nest.

	Whole Breeding Season		April 1-28	
	No.	Average Clutch.	No.	Average Clutch.
Clutches found during laying	282	5.06	168	5.00
All other clutches ...	1,217	5.03	624	4.96

SEASONAL DIFFERENCES.

The seasonal averages in clutch-size given for England and Wales in Table IV of the previous paper are slightly modified by the new data for 1946 and additional data for previous years, and an amended table is given below. These seasonal averages can be regarded as only approximate, because, while they cover many years, records for 1945 and 1946 predominate, and these two years were not altogether normal. This particularly applies to the unusually high clutches of mid-May, 1946 (see later).

Table III confirms the tendency for the average clutch-size of the Robin in England and Wales to be highest in May, rather smaller in April, and rather smaller still in March, June and July. As shown elsewhere (Lack, 1947), a similar tendency is found in many other British song-birds which regularly raise two or three broods in a year. It is not, as yet, known whether these seasonal variations are primarily due to internal or to external factors, but the latter have at least a modifying influence, as the seasonal changes do not follow exactly the same course every year. This was also found for the Yellowhammer by Parkhurst and Lack (1946).

TABLE III. Seasonal Variations in Clutch-size in England & Wales.

Period.	Total nests found.	Percentage of nests consisting of					Average clutch.	Combined Average.
		c/3	c/4	c/5	c/6	c/7		
March 2-17 ...	8	[13%]	[50%]	[38%]	—	—	[4.3]	4.6
18-24 ...	24	—	33%	63%	4%	—	4.7	
25-31 ...	65	9%	26%	52%	11%	2%	4.7	
April 1-7 ...	147	1%	18%	63%	17%	1%	5.0	5.0
8-14 ...	246	2%	15%	66%	16%	—	5.0	
15-21 ...	237	2%	17%	60%	21%	—	5.0	
22-28 ...	162	2%	23%	57%	18%	—	4.9	
29-May 5	136	2%	16%	48%	32%	2%	5.2	
May 6-12 ...	97	1%	20%	44%	26%	9%	5.2	5.2
13-19 ...	93	1%	14%	45%	34%	5%	5.3	
20-26 ...	90	2%	12%	36%	43%	7%	5.4	
27-Jun. 2	57	2%	13%	47%	35%	4%	5.3	
June 3-9 ...	51	—	27%	43%	27%	2%	5.0	4.8
10-16 ...	26	8%	19%	50%	23%	—	4.9	
17-23 ...	28	7%	32%	50%	11%	—	4.6	
June 24-Aug. 4	31	10%	23%	39%	29%	—	4.9	
Total	1,498	2%	19%	54%	23%	2%	5.03	

NOTES — (i) One c/2 and one c/8, both in the week April 22-28, were also recorded.

(ii) The clutch totals are 1/2, 37/3, 278/4, 811/5, 344/6, 28/7 and 1/8.

(iii) This table replaces Table IV of the previous paper.

ANNUAL DIFFERENCES.

Experienced egg-collectors are of the opinion that in song-birds the average clutch-size is somewhat different in different years, and this contention can now be proved for the Robin. The data in Table IV show that the clutch-size in England and Wales between late March and the end of April was definitely above average in both 1945 and 1946. In 1945 this period was remarkably fine and warm, while in 1946 it was also unusually fine, though not quite so warm. Observations would be needed over a period of years to prove a correlation between fine weather and higher clutch-size in spring, but it may well be that such a correlation exists.

A much more striking variation was found in mid-May, 1946, when the average clutch-size was more than 1 egg higher than usual, and in particular there was an unusual abundance of c/7s. Most of the 1946 records for this period came from the midlands of England, from Bedfordshire, Berkshire, Oxfordshire, Gloucestershire and the Welsh border. There appears to have been nothing exceptional in the weather in this region at the period in question. It should be added that four clutches found near Oxford in mid-May, 1947 (after the enquiry had closed), consisted of 1/6, 2/7 and 1/8. This suggests that 1947 was another unusual year, and it may be added that the clutches of Great and Blue Tits (*Parus major* and *P. caeruleus*) were also above average in May, 1947. There was also a plague of defoliating caterpillars (*Operophtera (Cheimatobia) brumata*), which constituted the main food of the nestlings of these three species, but whether these events were correlated only future research can determine.

TABLE IV. Annual differences in Clutch-size.

A. All clutches March 25-April 28, in Britain south of the Wash.

Year.	Number of clutches consisting of					Average.			
	c/3	c/4	c/5	c/6	c/7				
Before 1945	9	70	202	42	1	4.9
1945	2	9	70	24	—	5.1
1946	3	17	64	34	1	5.1

B. All clutches May 6-19, for all England and Wales.

Before 1945	...	...	...	1	29	75	39	4	5.1
1945	...	...	...	1	3	7	10	—	5.2
1946	...	...	...	—	—	3	8	10	6.3

NOTES—(i) The difference in average is statistically significant for April, 1945 as compared with earlier years, and for April, 1946, as compared with earlier years, also for mid-May, 1946, as compared with earlier years or 1945. But the small difference between mid-May, 1945, and earlier years is not significant.

(ii) Compare with Table VII of previous paper.

REGIONAL DIFFERENCES.

Sufficient records have now been received from Ireland to show that average clutch-size here is approximately the same as in England and Wales. Additional records from north-eastern

Scotland (Rothiemurchus, Aberdeen, East Ross-shire) confirm that the average clutch-size here is higher than in England and Wales, though the average appears to be a little smaller than the figure given in the earlier paper.

TABLE V. Regional differences in the British Isles.

(For period April 15-June 9).

Region.	Number of clutches consisting of					Average.
	c/3	c/4	c/5	c/6	c/7	
Ireland	—	5	22	9	—	5.1
England and Wales	9	111	334	205	29	5.2
North-eastern Scotland	1	4	33	33	5	5.5

NOTES—(i) The average difference between north-eastern Scotland and England and Wales is statistically significant. The small apparent difference between Ireland and England and Wales is not, of course, significant.

(ii) Compare with Table IX of previous paper.

It had been hoped to investigate whether average clutch-size was smaller in the south than the north of England, or smaller in the west than the east. However, the figures are insufficient for this purpose, chiefly owing to a bias introduced by the fact that, in 1945 and 1946, some parts of England were studied more intensively than others and that, as already noted, clutches seem to have been abnormally high during parts of these years. Thus the midlands appear to have a higher average clutch-size than any other part of England, but this is perhaps due to the fact that so many of the nest records for 1946, when clutches were abnormally high, came from this region. Clutch-size appears to be slightly lower in the extreme south-west of England (Cornwall, Devon and Somerset) than elsewhere, the average for this region for April 15-June 9 being 4.95 eggs (based on 116 clutches), as compared with the general average of 5.2 eggs; however, in view of the above doubts, this possible difference must be regarded as unproven.

A few additional clutch records were received from abroad. H. N. Kluijver's records from Holland, added to those received earlier, make the average for 97 Dutch clutches (April 15-June 9) 5.8 eggs (*cf.* 5.7 in the previous paper). Fifteen further clutch records from Finland by R. Kreuger cause no change in the average figure given in Table IX of the previous paper. H. Kreuger also sends a record of c/6 from the Caucasus.

NESTING SUCCESS.

Nesting success is analysed in greater detail than before. It should be noted that, in the earlier paper, hatching success was wrongly estimated from all nest records received, instead of, as now, only from those nests found before the clutch was complete. Nestling (fledging) success is unaffected by this change, as in both

papers this has been estimated only from those nests found before the young hatched. So "hatching success" here means the percentage survival from the time of the completion of the clutch to the hatching of the young, and "nestling success" the percentage survival from the time of hatching of the young to their leaving the nest. Losses during the laying period have not been estimated. Tables VI-VIII refer only to England and Wales, the data from north-eastern Scotland being omitted, as conditions are so different here. Data from one locality in northern Scotland are given in Table IX.

Nesting success is sometimes estimated per nest, and sometimes per individual. As shown in Table VI, in the Robin the two methods give a similar answer, the percentage of nests in which one or all except one egg or nestling succeeded being almost the same as the total percentage of eggs or nestlings which succeeded. This is because nearly all the nest losses are due to predators, hence there is a marked tendency for either complete success or complete loss. Partial loss is rare, except that one egg of a clutch not infrequently fails to hatch.

TABLE VI. Summary of Nesting Success.

A. Analysed per individual.

<i>Hatching success</i>	Eggs laid	1,426	hatched	1,011, or 71%
<i>Nestling Success</i>	Young hatched	1,865	fledged	1,427, or 77%
Average success from egg to leaving nest—55%				

B. Analysed per nest.

	<i>Complete successes.</i>	<i>1 egg</i>	<i>Partial successes, all except</i>	<i>2 eggs</i>	<i>3 eggs</i>	<i>4 eggs</i>	<i>5 eggs</i>	<i>Complete failures.</i>
From laying to hatching ...	152	50	11	5	1	1	62	
From hatching to leaving nest	297	16	8	2	2	—	82	

Percentage of nests in which all, or all except one, succeeded :

- (i) Laying to hatching (282 nests) 72%
 (ii) Hatching to leaving nest (407 nests) 77%

NOTE—This Table replaces Tables XI and XII of previous paper.

Seasonal differences: The data in Table VII, Part C, suggest that nesting is more successful in May than in April, very possibly because in April the ground vegetation is not so well grown as in May, so that the nests are more exposed to predators. Certainly nest-hunting by small boys drops off markedly round Oxford in May as compared with April, so soon as the leaf cover makes search more difficult and less rewarding. The poor nesting success in June as compared with May or April is not quite so easy to account for, as the leaf cover is by then very dense, but in June there are more avian nest-predators on the search, e.g. many young of the crow family are by then out of the nest, and young squirrels and

other mammals are also about. As mentioned in the earlier paper, nesting success is lowest outside the normal breeding-season, only 3 out of 20 nests found between September and January inclusive being recorded as successful. Another late nest, c/5 on December 15th, 1946, in South Gloucestershire, reported by H. H. Davis, was also deserted after the start of incubation. This makes a nesting success of only about 14 per cent. for such late nests.

TABLE VII. Nesting Success in relation to Season.

				A. Hatching.			
Month in which clutch completed				No. of eggs laid.	Number hatched.	Percentage hatched.	
March	...	...	...	62	46	69%	
April	...	...	...	900	614		
May...	...	...	...	343	263	77%	
June	...	...	...	111	75		
July	...	...	...	10	8	68%	

B. Leaving nest.

				No. of young hatched.	Number leaving nest.	Percentage leaving nest.	
Month in which clutch completed.							
March	...	...	...	78	69	77%	
April	...	...	...	1,077	817		
May...	...	...	...	540	426	79%	
June	...	...	...	143	96		
July	...	...	...	27	19	68%	

C. Average success from egg to leaving nest.

Season.				Success.
March, April	...	...	...	53%
May	...	...	...	61%
June, July	...	...	...	46%
Sept.-Jan. (see text)	...	...	...	14%

Influence of family-size: Part A of Table VIII indicates that hatching success is similar for clutches of different size within the usual clutch limits of 3-7 eggs. (The slight apparent advantage of c/5 compared with other clutch-sizes is doubtless due to chance.)

Part B of Table VIII suggests that there might be a small decrease in nestling success as the size of the brood increases. However, this apparent difference is not significant. Nestling losses include complete and partial losses. It is among the complete losses that the larger broods appear to do less well, but complete losses are due almost entirely to predation, and it is highly unlikely that the latter could be influenced by brood-size. Also, data to be published later by J. Fisher and the writer on the Blackbird (*Turdus merula*) and Song-Thrush (*T. ericetorum*) respectively show that, for these species, nestling mortality is independent of brood-size.

Table VIII. Nesting Success in relation to Family Size.

<i>A. Hatching success.</i>			
<i>Clutch-size.</i>	<i>No. of eggs laid. hatched.</i>		<i>Percentage hatched.</i>
2	2	1	69%
3	42	32	
4	172	116	
5	700	512	73%
6	465	318	69%
7	42	32	

<i>B. Nestling success.</i>			
<i>Brood-size.</i>	<i>No. of young hatched. leaving nest.</i>		<i>Percentage. leaving nest.</i>
1	6	6	[100%]
2	28	24	86%
3	129	105	81%
4	404	315	78%
5	830	625	75%
6	426	317	74%
7	42	35	83%

<i>C. Nestling success per nest.</i>			
<i>Brood-size.</i>	<i>No. of nests.</i>	<i>total losses.</i>	<i>partial losses.</i>
1, 2 & 3	63	13%	6%
4	101	19%	10%
5	166	22%	6%
6 & 7	77	23%	5%

NOTE—Full nestling success data are given in Appendix I.

(To be concluded).

BIRD LIFE ON PETT LEVEL FLOODS, 1941-1943.

BY
R. COOKE.

(concluded from p. 70).

1942 (continued).

On February 4th, while in a hide, well in the middle of the water, I identified seven Long-tailed Ducks. They came within a few yards of me and two of them were adult drakes, the first I had seen in Sussex. They were very restless and soon went back to the sea again. Nothing more was seen of this species during 1942.

On the 9th two adult Red-breasted Merganser drakes were seen and on the 17th nine Whoopers (*Cygnus cygnus*) appeared; four were adults, the others immature. They only stayed for two days.

The weather remained cold during most of February. Wigeon were much less plentiful, but many more Tufted Duck and Pintail had arrived. There was a flock of about 600 Tufted Duck, Scaup and Pochard on the water on March 3rd and several Bitterns (*Botaurus s. stellaris*) were seen about the same time. One was shot in February, the others were seen up to April 2nd. Up to now I have not mentioned Curlew (*Numenius a. arquata*), but some were always present, frequently large numbers, as were also Dunlin and other waders. I could only guess the identity of some, as most of the islands were difficult to approach unseen.

In early March Great Crested Grebes returned to the flood, three pairs of them. Three other grebes, either Black-necked (*P. n. nigricollis*) or Slavonian (*P. auritus*), were also present, but I could not get near enough to identify them with certainty. There were also a few Little Grebes (*P. r. ruficollis*), but they were never numerous and no more than two or three nests were seen each year.

On March 12th large numbers of Brent and a few grey geese passed over, flying east against a light E.N.E. wind. Three Hen-Harriers, one an adult male, that had been present all the winter took their departure about the 25th. On April 18th I flushed a Squacco Heron (*Ardeola ralloides*) from under some dead trees. It flew about 500 yards and settled again in a patch of reeds. By rowing the boat along a ditch I was able to get within thirty yards of it and watch it through my glasses. Its bill was dark green, back brownish-buff, wings and wing-coverts white, neck and throat pale brown, legs yellowish. The long feathers at the back of the head were white with black margins. It remained about until the 23rd and I saw it on four occasions altogether.

A few Lapwings' nests were found at the end of March, but the ducks were late in commencing to nest. I saw several Mallards' nests on April 10th and the first Shoveler's on the 18th, but it was not until May 1st that the first Garganey's was seen, almost in the same spot as the first one found in 1941.

Five Black-tailed Godwits (*Limosa l. limosa*) visited the flood on May 5th and on the 7th seven Black Terns were flying over the

water, causing me to hope that they would re-occupy last year's nesting site. This afterwards proved to be the case. Unfortunately their island was so far away from my end of the water that it was very difficult to find time to get there. On the 14th five Curlew Sandpipers (*C. testacea*) arrived on passage, two of them fine chestnut-coloured adults.

Coots and Moorhens were much less plentiful this year. This was probably due to lack of suitable cover, as the dead reeds and rushes had by now rotted away, except in a few places where the reeds had resisted the action of the salt water. In one such clump on May 10th I found the nest of one of the pairs of Great Crested Grebes. It contained three eggs, which afterwards hatched successfully, though one of the young ones was either killed or died a natural death. Though I found it dead not far from this nest, it is just possible that it may have belonged to one of the other two pairs, whose nests I did not find. The water was somewhat lower than in 1941, but even so the gulls and terns were much congested. About twenty pairs of Herring-Gulls nested on their previous sites, while the four or five colonies of Black-headed Gulls had each increased by about 200 per cent., so that by estimation at least 1,000 pairs were nesting. At one place there was a dump of old farm implements, wagons, carts and harrows, etc. These were taken possession of by the gulls, which made their nests on or in every part of them. Seven were counted on one old wagon. Even the dead willow and thorn trees were used, in some cases the nests being fifteen feet above the ground level of the banks on which the trees stood.

A few Wigeon, Pintail and Teal were still on the water, with one or two pairs of Tufted Ducks and many Sheld-Ducks. The last were again nesting on the banks on the north side of the water. A second Garganey's nest found was in an unusual place and quite near home. I had seen a Wheatear (*Enanthe æ. ænanthe*) sitting on some old pieces of timber stranded on an island and went there expecting to find a Wheatear's nest, but was very much surprised to find a Garganey's. I saw the duck sitting several times after this, but she did not hatch owing to a tragedy that occurred soon after. Some troops discovered my boat and made an expedition to many of the islands, stealing all the eggs they could find. It was a great pity and a blow to me, as most of the eggs were on the point of hatching. I saw the C.O. of the troops concerned and he issued severe instructions for the future, so that we had no further trouble of the kind.

On May 16th I flushed a duck from her nest that I am sure was a Pintail, as I saw her well at a distance of only two or three feet. The nest contained three eggs, the same colour as a Shoveler's, but slightly larger. Unfortunately she deserted. The nest was not as tidy as a Shoveler's, nor was there any down, but this was to be expected, as there were only three eggs. There were three pairs

on the water and later on the three drakes were several times seen together, when no doubt the ducks were sitting.

Another very interesting event to me was finding three Oystercatchers' nests. Whether it was that I was unused to this bird's cunning or not, they so confused me as to their nesting sites that I had to wait until May 26th, when they had started to sit, to locate them. All were on the dried mud of little islands, about 200 yards apart, on the seaward side of the water and each contained three eggs, which afterwards hatched. Other pairs were also present, but their nests were not located. I did not find a Teal's nest or see any young in 1942, though there were always one or two pairs about, but on June 7th I saw a small brood of Tufted Ducks with the old one. They were about half grown, but even without this direct evidence I should have been sure that this duck was breeding, as I was equally sure that they bred the previous year.

I am assured by my cousin, Robert Cooke, who can be relied upon, that he found a Wigeon's nest in some rough grass on the Winchelsea side of the water on May 26th. Three Wigeon drakes were present on that part of the water all the summer and he saw this pair together many times. The duck was put off the nest within a few feet of him and he saw her well. The nest contained eight eggs, within a few days of hatching. He describes them as dull white in colour and smaller than a Mallard's. The next day he saw the duck on the nest, had a good look at her and definitely identified her as a Wigeon. On June 6th he saw her again, within a few yards, and this time accompanied by her brood of seven young ones. On subsequent occasions they were seen throughout the fledging period.

There were many hundreds of terns this year, many more Common than Little, and I also saw five Sandwich Terns (*S. s. sandivicensis*) flying over the water, but they were obviously on passage. On June 2nd whilst on duty at the coast-guard hut I saw a Spoonbill (*Platalea l. leucorodia*). It was fishing the pools at half tide and feeding mainly on small crabs. This was the first occasion I had seen one and I watched it through the large telescope for over an hour—and it was still fishing when I went off duty.

About June 15th I was able to visit the Black Tern's site, but as related elsewhere, they had hatched off. I saw five nests and some of the young ones, but unfortunately my dog had followed me, and as I did not quite trust him among the young terns I did not stay in the vicinity very long. A few Green Sandpipers returned at the beginning of August, with a few Wigeon and Garganey, but the Shoveler had gone, or most of them. I noticed this each year, that the Shoveler left in July and did not return until October. On August 12th I was able to prove conclusively that the Pintail had bred here, for among the birds brought to me for identification was a very young Pintail, not much more than a flapper. It could not have come from any distance; in fact I am sure it could never

have been off this water. Two young Wigeon that I also examined on this date were also very immature and they must have been bred at least in the near vicinity, if not here.

The Garganey had all gone by the end of August. There were never so many as in 1941—I noticed that the drakes, even when in eclipse, never lose the light blue on the wing-coverts.

About September 10th many Teal and Pintail returned, also some Pochard, Greenshank, Dunlin and a small flock of Turnstones (*Arenaria i. interpres*). About the 17th three Spotted Redshanks arrived and were about for a few days. I noticed that they never mixed with the Common Redshanks, just as the Green Sandpipers never mixed with the other waders, which often joined up into a single flock.

At the beginning of October about 3,000 duck, Mallard, Teal, Wigeon, Shoveler, Sheld-Duck, Tufted Duck and Pochard, were present. At the end of the month numbers remained about the same except for a few more Wigeon and Pochard, but the waders had increased tremendously. A very large flock of Dunlin was there, with a few Ruffs, Knots, Green Sandpipers, Bar-tailed Godwits, Greenshanks and Grey Plover (*Squatarola squatarola*), Greenshanks were always present between September and April, Green Sandpipers and Ruffs left at the beginning of November and the godwits about the same time, with the exception of three that remained all the winter. The Lapwings had left in July and this happened every year. They came in the spring in large numbers to breed and bring up their young and as soon as these could fly they left, not to return until the next spring. Most of the Redshanks remained throughout the winter; Ringed Plover were rarely, if ever, absent. A pair of Montagu's Harriers returned early in September and later on I saw as many as five. The Oyster-catchers always went to the foreshore for their food and I very seldom saw flocks on the islands, except when the tide was high and then they could occasionally be seen resting there. In November there were more Pochard and a few Scaup had arrived, but the latter were very erratic and were only seen when the weather was rough or about to be rough. I saw a small flock of Goldeneye, three Red-breasted Mergansers and two or three Smew on the 20th. A few Golden Plover arrived about this time, but did not stay long, about three or four days only.

Two Pomatorhine Skuas (*Stercorarius pomarinus*) arrived on December 2nd and stayed for about a fortnight. I saw them many times chasing Herons (*Ardea c. cinerea*) and gulls. They gave the Herons such a bad time that they left the place and did not return for at least a fortnight after the skuas had gone. It was almost comic to see the skuas sitting on the water watching the Herons fishing and as soon as the latter brought anything to the surface that looked like a fish, the skuas were after them and if the Heron managed to swallow it before they could get it an aerial battle

developed. Writing about Herons reminds me that I forgot to mention earlier that two pairs nested in some trees behind the north edge of the water.

During December, which was very mild, there were from 4,000 to 5,000 ducks on the water. Wigeon were not plentiful, but there were more Shoveler and Pochard. The last were I think the commonest duck. I had seen no Great Crested Grebes on the flood water since the end of October, but had seen plenty at sea. About this time a large number of Knots arrived and occupied some of the islands nearest the sea. These plump waders I had usually associated with cold weather, but the weather now was very mild.

1943.

THE whole of 1942-43 winter was mild, but I do not think that the number of ducks showed any diminution. Wigeon fluctuated from week to week, but this was not due to weather conditions. Twenty Gadwall were first seen on January 4th. Pochard were very plentiful, usually in four or five separate flocks. They must have found plenty of food and whilst feeding the flocks were closely packed together over where the water was deepest. They would work each piece of water very thoroughly with their heads up-wind and all seemed to dive at the same instant. There were a few Tufted Ducks and Scaup with each flock, but never more than fifty all told. They behaved in much the same way as the Pochard. At the end of January a few Brent Geese arrived, but only stayed a day or two. A flock of eight White-fronted Geese (*Anser albifrons*) spent one day on one of the largest islands. This was the only occasion that I saw any grey geese on the flood, although I sometimes saw them passing over in the hard winter of 1940-41. Five Hen-Harriers were seen together on January 28th. By February 15th the Scaup and most of the Tufted Ducks had gone, but on this day three Red-breasted Mergansers and five Smew, one of them an adult drake, were present. I also identified eight Little Stints (*C. minuta*) in a flock of Dunlin, and saw them many times afterwards at close range. The water was now getting lower each week, though very gradually, and it was possible to get about in thigh waders, provided that one had an intimate knowledge of the area.

For the next fortnight the wader population increased, chiefly Dunlin with many Redshanks and Ringed Plover. Some Sanderlings (*Crocethia alba*) arrived on the 18th and remained until April 7th. Many Curlews and Oyster-catchers came on to the flood occasionally from the fore-shore, but not often. On the 27th a Goldeneye that had been shot was brought for identification.

By March 1st many of the Pochard had gone and the Gadwall were last seen on the 5th. Dunlin began to leave on the 1st and most of them had gone by the 19th. The Little Stints left on the 16th. About a hundred Greenshanks arrived on the 1st and gradually left between April 7th and 12th.

As the water got lower it attracted many Herons, no doubt because of the eels, of which there were many in the pools. A few Common Snipe (*Capella g. gallinago*) came about now and with them a few Jack Snipe (*Lymnocyptes minimus*). The former were never partial to this area, but the latter were there in some numbers until the last week in March. By the 15th more of the duck, including Pintail and Shoveler were beginning to leave and in fact all the ducks rapidly got less from this date. A pair of Garganey returned on the 14th.

At the end of March the largest flock of duck was one of about 200 Wigeon. These had recently arrived, but all except about 20 had left by April 10th. Mallard were nesting by March 29th.

Black-headed Gulls commenced to return to their former nesting-sites about March 14th and rapidly got more and more each week, until it seemed that there was no end to them. I found a Shoveler's nest on April 18th; there were also a few Wigeon and Teal on that date and two or three pairs of Pintail and Tufted Duck. Three pairs of Black Redstarts (*Phœnicurus o. gibraltariensis*) had been about since the middle of February. They could always be seen near the empty bungalows and sheds of the evacuated part of Pett Level. The nest of one pair was found on April 23rd, built behind a picture on the wall of an evacuated bungalow. It was very like a Robin's and built of similar materials. The eggs were white with some tiny red spots on the big end. Others I saw in 1944 were unmarked. Later I saw all three pairs feeding their young many times, but had no time to see what the food consisted of, though the old birds often went to the shore and were sometimes seen searching the dried sea-weed about high-water mark. Presumably, therefore, they were collecting flies or small beetles. In the winter I have seen them feeding on sand-hoppers.

An Arctic Skua (*S. parasiticus*) was seen on May 5th and seven Black Terns on the 10th. The re-appearance of the latter led me to hope that they would again find a nesting-site somewhere on the flood, but by this time the Black-headed Gulls had taken possession of almost every square foot of dry ground. There were about 1,500 to 2,000 pairs. I was able to keep most of the westernmost colony free from intruders, but not so the other three. These were systematically robbed, and the eggs marketed, perhaps no very great sin in wartime! On the 17th three White-winged Black Terns (*Ch. leucopterus*) were flying over the flood and on the 29th a Little Auk (*Alle a. alle*) was feeding just off the shore. On June 3rd I paid a visit to one colony of Black-headed Gulls and Common Terns. On one narrow rim of ditch-bank barely a yard wide there were 466 nests, all with eggs, in a length of 200 yards. Gulls' and terns' nests were mixed up indiscriminately over the whole length. On approaching such a site the noise was almost deafening. The Little Terns managed to find a few small places to nest on by themselves. On the same day I went to the Black Tern's site,

but they were not there and the island was occupied by Black-headed Gulls. Though I searched most of the other likely places I could not find them. About thirty pairs of Herring-Gulls occupied their old sites. A few Black-backed Gulls (*L. fuscus* and *L. marinus*) were always present at all seasons, but I suspect they were all non-breeders. Many young ducks were seen on this occasion, but as I had forgotten my binoculars, I could not identify any of them for certain. No Garganey nests were found this season, but there were certainly two pairs breeding. Several pairs of Pintail and a few Teal were always present and I am sure that all were nesting, but with so little spare time it was impossible to search over more than a third of the islands. The three pairs of Tufted Ducks also remained all the summer and I frequently saw the three drakes together by themselves. I found the nest of one of the pairs of Pintail on June 5th. I had passed quite close to it many times, but had never thought to look before, as there was hardly any cover, and it was about the last place where I should have expected to find it. On seeing this nest I felt doubly sure that the one I found the year before was without doubt of this species. The eight eggs were on the point of hatching. The duck only got off the nest when I had nearly trodden on her and only flew a few yards and flapped about on the ground. I could make no mistake as to her identity. The eggs were a little bigger than a Shoveler's, perhaps a little longer in shape. I washed some of the egg shells after they had hatched and the best description I can give of them is that they were creamy white.

By the middle of June there were numbers of young Sheld-Duck on the water. I intercepted one brood, on their way to the water from the bank, one morning a little later. The old duck was very bold and almost drove me away from the young ones. This seems to be the only species of duck in which the drake takes any part in bringing up the family. I know it is difficult to tell the duck from the drake unless seen at close range, but in nearly every case where I saw a brood they were accompanied by both duck and drake. Many more Lapwings and Redshanks had bred this season, as well as a few Meadow-Pipits (*Anthus pratensis*) and Yellow Wagtails (*Motacilla f. flavissima*). This was of course because there was a good deal more dry land. In some places there were areas of two or three acres dry. One brood of Garganey, about half grown, was seen at the end of June. Shoveler had been scarce all the season, or scarce as compared with 1941, Coots were almost entirely absent, while the two pairs of Mute Swans did not nest. Oyster-catchers, however, nested again, about four pairs, two of them on the fore-shore. Many Ringed Plover nested and in every case, as previously, the nests were lined with small shells.

On August 12th the ducks identified were:—Mallard, Teal, Wigeon, Pintail, Shoveler, Garganey, Tufted Duck and Sheld-Duck. On the 28th three Montagu's Harriers were seen.

By September 1st Wigeon, Pintail and Teal had very much increased. One flock of Pintail consisted of well over two hundred. Green Sandpipers returned at the end of July and Ruffs about the middle of August. There were never more than about twenty Ruffs and perhaps forty Green Sandpipers.

On September 4th I saw five Tawny Pipits (*A. c. campestris*) and on the 13th identified one that someone had unfortunately shot. The other four stayed until November 5th. By October 1st all the ducks, except Shoveler, had increased. Pochard were beginning to return, though the water was getting too shallow to suit them. During this month a tragedy occurred from which the ducks never recovered. A Military Brigade chose the flood as a target area, and suddenly one morning started firing on to it with all their weapons, including mortars. The explosives in some way poisoned the water, killing many hundreds of duck. In fact they were practically wiped out, and from that time onwards there was never any number present. Many Herons were also killed, but I think that the Mallard and Pintail suffered most. I saw as many as 200 of these two species dead on different parts of the water. This was a great blow to me. The few Coots and Moorhens on the water appeared to be unaffected, perhaps because they are not bottom feeders and I think that the contamination can only have lasted a short time. The waders too were unaffected. It has been suggested that blast was responsible for the mortality, but this could not have been so, for to commence with at the first shot the duck all took flight for the sea and secondly many were found dead, in some cases as much as two miles away from where the firing took place.

Dunlin were coming back from early September and by the end of October there was a very large flock, with a small flock of Sanderlings and one or two Purple Sandpipers.

On October 3rd I saw a Red-spotted Bluethroat (*Luscinia s. svecica*) and on the 7th met with two Cream-coloured Coursers (*Cursorius c. cursor*). They were on a patch of dried mud on the landward side of the water and I was attracted to them by the speed with which they ran. I was able to get within fifty yards of them and having once before seen the species alive I was able at once to identify them by their very distinctive appearance, through my glasses. In size they were slightly smaller than Golden Plover, their backs were a light sandy colour, with a black stripe running from each eye to the nape, outer wing feathers black, underparts whitish, with greyish legs thicker than most waders.

Nothing worth recording happened after this, except that a few duck returned in January 1944, but there was soon to be no place for them, as the water was drained off in February.

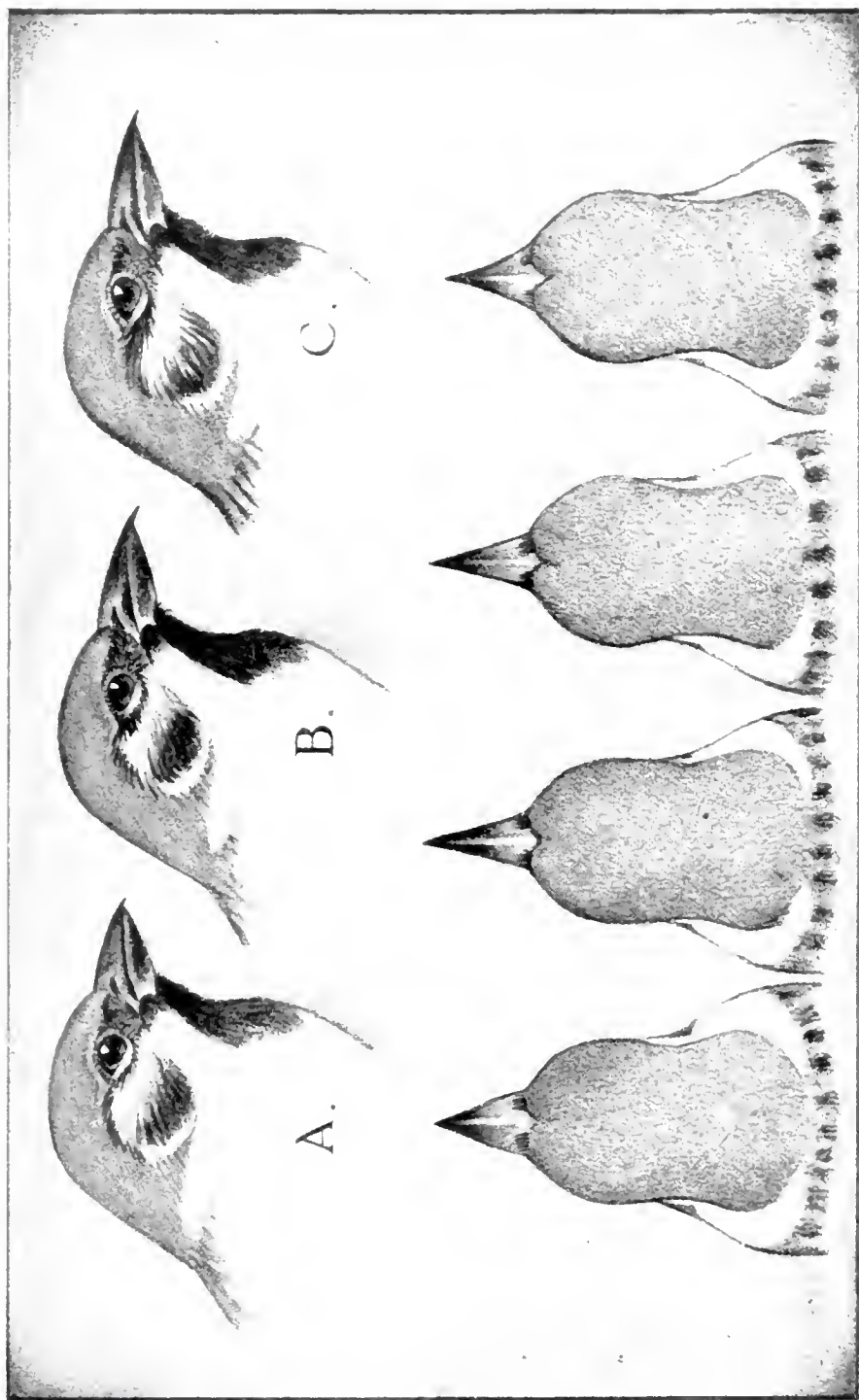
During the years 1939 to 1945 I spent many hundreds of hours watching out to sea, but I have made no mention here of any of the interesting things in bird-life that I observed during that time, except for the Spoonbill seen in 1942.



SCOTTISH CROSSBILL (*Loxia curvirostra scotica*), MALE FEEDING FEMALE ON NEST, SPEY VALLEY, 1947.

(Photographed by Eric Hosking).

(See p. 49).



D. E. F. G.

DRAWINGS OF HEADS OF TREE-SPARROWS IN THE CLANCEY COLLECTION TO SHOW SEASONAL VARIATION IN BILLS.
A, D : female adult, November. B, C, E, F : female breeding adults, June. G : male breeding adult, June.

THE INCUBATION AND FLEDGING-PERIODS OF THE RAZORBILL

BY

J. KEIGHLEY AND R. M. LOCKLEY.

THE incubation-period of the British Razorbill (*Alca torda britannica*) does not appear to have been accurately recorded. *The Handbook of British Birds* (Vol. v, p. 146), quotes the incubation-period as "25 days in incubator (F. G. Paynter), 26-30 (O. A. J. Lee), 30 in incubator (W. Evans), at least 35 (Miller)."

The following observations were made at Skokholm Bird Observatory, where some 800 pairs of Razorbills nested in 1947. Fifty nests were kept under observation and the daily recording was carried out by J. Keighley. Razorbills at Skokholm first visit the ledges during the day late in February, but do not settle down to sleep on land at night until the first eggs are about to be laid early in May. As soon as egg laying commenced, certain colonies at scattered points round the island were chosen as suitable observation sites, and were visited every morning. As the eggs were found, they were marked with an indelible pencil and their positions plotted on a map.

An error of about one day may occur in the incubation-period, as the egg might have been laid shortly after the colony had been visited, and it would not be seen by the recorder until the following morning. Similarly with the fledging-period. But these errors are slight and would not influence the average of the eighteen records.

Each colony was visited once a day except during chipping or late fledging-periods, when morning and evening inspections were carried out in order to get the times of hatching and fledging as accurately as possible. This did not seem to disturb the adults too much, and as many of the eggs could be seen from a distance with the aid of binoculars, the human factor as a cause of the loss of eggs is believed to be negligible.

Thirty-two (64%) of the eggs were lost; the majority of these were on exposed ledges where they could easily be spotted and taken by predators.

Eighteen (36%) of the eggs hatched, and not one of the chicks was lost, this being due to the fact that they were hidden under boulders and were safe from the predatory gulls which patrolled the cliffs.

<i>Nest No.</i>	<i>Incubation-period.</i>		<i>Fledging-period.</i>	
RA. 1	34	days 15 hours	17	days 0 hours
2	34	" 1 "	15	" 22 "
3	34	" 4 "	18	" 20 "
4	34	" 5 "	16	" 19 "
5	34	" 10 "	16	" 10 "
15	33	" 0 "	14	" 0 "

Nest No.				Incubation-period.			Fledging-period.		
RB.	1	...	...	34 days	0 hours	16 days	22 hours	
	2	...	...	34	0	16	0	
RC.	1	...	...	34	0	18	0	
	2	...	...	33	0	16	0	
	3	...	...	34	0	14	0	
	4	...	...	36	0	15	0	
	5	...	...	35	0	16	0	
RD.	1	...	...	34	0	14	0	
	2	...	...	34	0	14	0	
	3	...	...	35	0	12	0	
	4	...	...	35	0	13	23	
	5	...	...	34	11	18	0	

The average incubation-period of the eighteen eggs was 34.3, with extremes of 33 and 36 days. This figure is rather less than that of 35.5 days for the Northern Razorbill (*Alca torda torda*) given by Knud Paludan in *Alken* (Copenhagen, 1947); the periods for six successfully hatched eggs were 36, 35, 36, 36, 35, 36 days. He appears to have visited these eggs once in twenty-four hours.

The average fledging-period of the eighteen chicks was 15.7 days, with extremes of 12 days and 18 days 20 hours. This confirms the figure of 15.7 days of our earlier paper (Keighley and Lockley, *British Birds*, Vol. xl, pp. 165-171, 1947), for six chicks whose hatching and fledging dates were accurately known in 1946.

NOTES.

RAVENS NESTING IN A HERONRY.

IN a recent volume of *British Birds* (*antea*, Vol. xxxix, pp. 212 and 340) records are given of Ravens (*Corvus c. corax*) nesting in heronries. I should like to record that for several years up to 1942, a pair of Ravens nested in a circle of tall pines containing a heronry, at Pennybont, Radnorshire. Three years ago the Ravens went to an alternative site. It was hoped that they would return, but the trees were felled in 1945, so now both Ravens and Herons have gone.

A. W. BOLT.

SEASONAL BILL VARIATION IN TREE-SPARROW.

(Plate 16).

THIS note is the outcome of a recent analysis of the western Palæartic races of the Tree-Sparrow (*Passer montanus*), in which observable differences between the bills of specimens taken in the autumn and winter and those taken in the height of the breeding-season were encountered in the extensive series assembled.

Generally speaking, it was found that birds obtained in late May, June, and July have the bill noticeably attenuated. The apex of the upper mandible frequently overhangs that of the lower by as much as 2.5 mm. Autumn and winter Tree-Sparrows have culmens as measured from the skull 12.5-13.5, occasionally 14 mm., but in summer birds this range of measurements has increased to a noticeable degree, birds with culmens of 14, 14.5 and even 15 and 15.25 mm. being quite general. Even in those that do not show any size difference by measurement an appreciable attenuation of the upper mandible is perceptible. The greatest culmen lengths seem to be those attained by females, in which the above defined differences between autumn and winter birds and summer examples show a measure of constancy, but in males not a few summer birds can scarcely be distinguished by their bills from those of other seasons.

In the plate of heads, profiles B, C and plan-views E and F show the extreme summer phase of bill development as exemplified by breeding June females from Suffolk in my collection. Plan-view G is of an average summer male.

It seems clear that the attenuated nature of the bill in summer Tree-Sparrows is correlated with the seasonal change in diet; a bill of such proportions presumably being more advantageous in the rapid acquisition of insect larvæ, imagines, etc., upon which the young are reared. Adults in autumn and winter have bills as in first-winter birds, so that the differences just dealt with are purely seasonal and in no way connected with age.

In the allied House-Sparrow (*Passer domesticus*) such seasonal bill variation as given above for the Tree-Sparrow is apparently similarly found, but I have seen insufficient June and July birds to

permit of a pronouncement at the present time. Certainly, breeding June males taken in Carinthia (Kärnten), Austria, in 1945 have extremely attenuated bills—quite unlike the bills of autumn birds from the neighbouring province of Styria (Steiermark). Dr. O. Kleinschmidt, Wittenberg, confirms *in litt.* that summer House-Sparrows (central Germany) seem to have longer bills than is the case in autumn and winter birds. Of the Italian Sparrow (*Passer italicæ*) an examination of extensive series of breeding and non-breeding specimens of the races *P. i. italicæ* (Vieillot) and *P. i. schiebeli* v. Rokitanisky reveals little measurable seasonal variation, and for the Spanish Sparrow (*Passer hispaniolensis*) I have no data.

P. A. CLANCEY.

RICHARD'S PIPITS IN SUSSEX.

ON September 17th, 1947, there was a large arrival of pipits and buntings on the Sussex coast at Pett Level. Birds were coming in from the south-east with a light S.E. breeze all the morning, the buntings high overhead, too high for specific identification, the pipits low over the waves, Meadow-Pipits (*Anthus pratensis*) in thousands and Rock-Pipits (*A. spinoletta petrosus*) in hundreds. The former mostly pitched on to rough ground inside the sea-wall, the latter on to the rocks and foreshore. Amongst them were three Tawny Pipits (*A. c. campestris*), birds I have frequently seen before. They appeared to be tired, standing and preening on the rocks and allowing of a very near approach, so that every detail of their plumage could be seen. They afterwards moved to some sandy marram-covered ground inside the sea-wall, where I found them again the next morning. Half an hour later, at 10.15 (G.M.T.), a Richard's Pipit (*A. r. richardi*) came in and dropped on to the wooden slipway from which the boats are launched. Running up this at an amazing pace it then flew over the wall on to the same piece of rough ground as the Tawny Pipits. Here I had it under close observation, sometimes within fifteen yards until 10.40, when it flew off westwards in the direction of Cliff End. It was slightly larger than the Tawny Pipits, with noticeably longer legs, a very long hind claw and less upright stance. Its back was much like a Skylark's, the tail-coverts uniformly brown, and it had conspicuous white outer tail-feathers. There was a buffish eye-stripe, the breast and flanks were light buff, with brown flecks on the side of the neck and breast, belly white.

R. COOKE.

ABOUT noon (G.M.T.) on September 17th, at Cliff End, Fairlight, Sussex, a bird coming from the edge of the cliff to the east drew my attention by an unknown, rather loud, harsh call. It dropped about 30 yards from me on the edge of a newly-ploughed field and I had no difficulty in recognizing a Richard's Pipit (*Anthus r. richardi*).

Standing erect and alert, this large pipit looked very long-legged; the head, half turned towards me, was streaked on top, then came a clear, creamy-buff stripe immediately over the eye, and below

another patch of the same colour. But, after size and length of leg, its most noticeable feature was the inverted, lightly streaked, crescent of buff on the breast. The points of this crescent turned up, curving in back to the beak, while the same shade of buff showed from under the edge of the wing, but the lower breast was much lighter and faded almost to white under the tail. Such parts of the wings as could be seen were heavily streaked dark brown on a much lighter brown, and the white of the outer tail-feathers was seen when the bird flew. The legs looked very light, yellowish, in the autumn sunlight.

The place where the bird was seen was about 1,000 yards to the westward of Pett Level boat slipway, where Mr. Cooke saw a Richard's Pipit on the same day, and it may be that our observations refer to the same individual, though it is equally possible that more than one was present on this bit of coast on the date in question. The bird seen by me flew away to the west after some minutes.

A. DENBY WILKINSON.

SONG-PERIOD OF ROCK-PIPIT.

THE chart of the song-periods of birds in *The Handbook of British Birds* indicates that the song of the Rock-Pipit (*Anthus spinoletta petrosus*) comes to an end at the beginning of August. My observations on the Isle of May during September, 1947, show that this information is not complete. On September 25th, a warm but cloudy day, I heard the song of the Rock-Pipit, but could not tell whether the song-flight was also performed, as the bird was out of sight round the corner of a cliff. On the following day, however, which was bright and sunny, three different Rock-Pipits were both heard singing and seen doing their song-flights, one of them on several occasions. On this day all the Rock-Pipits on the island were behaving much as they do in spring, chirruping and pursuing each other. On September 27th, a day which was less fine than the preceding, the song and song-flight were also witnessed, but only from a single bird.

I think that the number of these observations shows that the singing of the Rock-Pipit in September is a regular occurrence in fine weather.

I am also informed by Mr. G. Waterston (*in litt.*) that he found Rock-Pipits in song on the Isle of May on October 18th and 19th, 1947. He has also drawn my attention to records by R. Perry (*A Naturalist on Lindisfarne*, pp. 82 and 91) of Rock-Pipits singing on Holy Island in October and February. M. F. M. MEIKLEJOHN.

UNUSUAL FLOCK OF PIED WAGTAILS.

WITH reference to the note under this heading by L. G. Weller (*antea*, Vol. xl, p. 248), I observed a large number of Pied Wagtails (*Motacilla alba yarrellii*) on November 20th, 1943, on a recently ploughed field near Claygate, Surrey. I endeavoured to count

them and came to the conclusion that there must have been between 100 and 150. They were apparently feeding on grain left on the ground from a recently harvested crop. On being disturbed they flew short distances with legs hanging down, a few at a time, and resettled. The weather at the time was cold and foggy. They were present only on the above date—visits on several days following confirmed this.

This species is normally present only in small numbers in winter, a few pairs remaining to breed. K. P. KEYWOOD.

I WAS most interested in Mr. L. G. Weller's report of an exceptionally large flock of Pied Wagtails (*Motacilla alba yarrellii*) at Cranleigh, Surrey, in January, 1947 (*antea*, Vol. xl, p. 248). On September 6th, 1946, I counted 96 on Cranleigh Cricket Ground. Like Mr. Weller, I was struck by the unusual size of the flock, which was doubtless the same one which moved round. The proportion of juveniles in the flock was large. GORDON N. SLYFIELD.

UNUSUAL NEST-SITES OF GOLDCREST.

THOUGH the nesting of the Goldcrest (*Regulus r. anglorum*) on the upper surfaces of branches has been recorded on occasions, it is evidently very unusual to find this method adopted in conifers. The following notes are accordingly of interest.

On May 29th, 1938, a visit was paid to a plantation of small conifers planted along a stream-side near Pickering in the North Riding of Yorkshire. In a small area four nests of the Goldcrest were seen and in all cases the nests were built against the trunk on the upper surface of a branch. The nests were like those of the Chaffinch in miniature and contained eggs in one case and young in two other cases. The nests were all about five feet from the ground and the trees themselves were about ten feet high. The size of the trees precluded any nesting of the usual type in which the nest is suspended at the end of an over-hanging branch.

Another visit was made on June 11th, when, in a further stretch of the plantation, four more nests were found. The nests were again built in the same fashion and in the same kind of position. In one case only were there signs of a rudimentary suspension. As the nests on both visits were found without an intensive search, but simply by moving through a cross section of the plantation, it was evident that breeding was almost colonial. In the case of the four nests found on the second visit three contained young drowned by recent heavy rains. J. LORD AND G. H. AINSWORTH.

LATE REED-WARBLER IN SURREY.

ON October 9th, 1938, a Reed-Warbler (*Acrocephalus s. scirpaceus*) was seen in some willows at the edge of a flooded gravel pit at Mitcham, Surrey, where several pairs had nested. On November 6th in the same year and at exactly the same spot, a bird was seen well on a willow just above the water. It was noted there both in

the morning and again in the same place in the afternoon, when I went back to make absolutely sure of the record. The bird appeared well and uninjured. I had watched these birds a good deal that year while they were nesting and was well acquainted with them.

G. BEVEN.

PERSISTENCE OF BEHAVIOUR DUE TO HABIT-FORMATION IN SWALLOW AND BLACKBIRD.

VON TREUENFELS (*Z. Tierpsychol.*, 4, (1941), pp. 169-172) cites an instance of a female Chiffchaff (*Phylloscopus collybita*) referring its behaviour to the nest for a period after the young had fledged.

I recorded two somewhat analogous forms of behaviour in 1945 with reference to Swallow (*Hirundo r. rustica*) and Blackbird (*Turdus m. merula*) respectively.

The reaction of a pair of Swallows to my entering a barn when the nest therein contained young, was to fly round excitedly calling with the characteristic "chink-chink" alarm call (which, incidentally, does not seem to be mentioned in *The Handbook*). This behaviour persisted in one adult on the day (August 4th) after the four young had left the nest and were flying with the parents. It was obviously directed to the barn and the nest, as it increased in intensity as I came nearer to the latter in the manner typical of the previous weeks.

A female Blackbird which had nested in a ventilation hole in a wall similarly reacted with alarm behaviour—flying past it and screaming with the alarm call—when I climbed up to the nest and found that the last two young had flown (the first two of the brood having fledged the previous day).

All three instances show the persistence of behaviour after the conditions originally necessitating the behaviour have been superseded.

D. J. MAY.

ROLLER IN HAMPSHIRE.

ON September 15th, 1947, keeper George Blake reported that he and under-keeper Bert Smith had observed a strange bird in the New Forest near Fritham which he had identified in Coward's *Birds of the British Isles* as a Roller (*Coracias g. garrulus*). Subsequently it was seen by all the undersigned, by B.W. on September 16th, 19th and 20th, by H.G.P. and F.J.G. on the 20th and by E.C. on the 21st. It frequented open heathy ground and was generally to be seen perching on telegraph or other overhead wires, from which it repeatedly dived down into the heather, evidently in pursuit of food, and quickly flew up on to the wires again. From the comparatively dull colouring of the body it was clearly a bird of the year, but the fleeting display of vivid blue on the wings every time it flew down from its perch or up again from the ground was very striking. The bird was watched by H.G.P. from about 5 to 6 p.m. (B.S.T.) against a sinking sun and thus under unfavourable

conditions for accurately observing shades of colouring. The most satisfactory observation for this purpose was probably that of B.W., who on September 19th was able to drive his car to a position only about 15 yards from the bird with the sun full on it, and the following brief description is based mainly on his notes and those of F.J.G. Back chestnut or warm brown, under-parts light blue, with pinkish tinge on breast and chin cream or whitish, primaries dark brown, tail brown in centre, showing blue at sides, feet brownish-yellow, bill dark brown, almost black. There is some discrepancy in the several observers' impressions of the colour of the head, due no doubt to the conditions of observation; according to B.W., who, as stated above, watched the bird at close range in a good light, it appeared not very different from the back. On September 22nd, E.C. failed to find it again and it does not appear to have been observed by anyone subsequently.

E. COHEN, F. J. GODDARD, H. G. PESEL AND B. WHITEHEAD.

GREEN WOODPECKER FOLLOWING PLOUGH.

ON January 11th, 1945, at Cley, Norfolk, I observed a Green Woodpecker (*Picus viridis pluvius*) in a field which was being ploughed. It was seen to alight in a furrow, and whilst under observation, twice flew further along the furrow then being ploughed and started feeding with the Rooks and gulls, which were present in some numbers. The weather at the time was very mild.

K. D. G. MITCHELL.

MARSH-HARRIER IN GLOUCESTERSHIRE.

ON October 27th, 1947, one of us (A.W.) in company with Mr. and Mrs. Palmer, of Baslow, Derbyshire, observed a Marsh-Harrier (*Circus æ. æruginosus*) at Frampton-on-Severn gravel-pits, Gloucestershire. It was watched again on October 28th, quartering low over the reed-beds, and on November 2nd it was observed by H.H.D. It was a young bird in the characteristic dark brown plumage with creamy-buff on the head. There appears to be no Gloucestershire record of this species during the present century.

A. WHITAKER AND H. H. DAVIS.

PURPLE HERON IN CAMBRIDGESHIRE.

ON August 16th, 1947, I observed a Purple Heron (*Ardea purpurea*) probably a juvenile by its coloration, in the valley of the River Cam approximately two miles N.E. of Cambridge. It rose from an area of sedgy marsh when I was about 9 yards away and settled on the top of a partly barren White Willow about 150 yards away and on the opposite side of a railway. When it got up I saw that it was clearly a heron, of a general fairly dark brown colour, with the quills darker (dark brown to blackish) than the rest of the wing and the legs appearing yellow with a greenish tinge. The bill was also yellow. It remained in the tree for about 10 minutes, at first with neck outstretched at the alert and then in a humped attitude with

the neck folded ; it was smaller and more slender than a Common Heron. The general colour was again seen to be definitely brown, and once when the bird turned its head I was able to note that the throat was pale, but not pure white. It was observed in bright sunshine with field-glasses and a telescope (15 x).

When I moved in an attempt to obtain a front view the bird unfortunately flew away on the far side of the willows and was lost to view.

A. DOBBS.

WASHING OF FOOD BY BUFF-BACKED HERON.

ON October 14th, 1947, I was watching four Buff-backed Herons (*Ardeola i. ibis*) that were feeding beside a flooded lawn at Gezira, Egypt. One of the birds captured a large insect which appeared to be a black beetle about the size of a cockchafer. Holding the insect in the tip of its bill the bird walked to the water and immersed it three times, shaking it and fumbling with it whilst holding it in the water, after which it was swallowed.

Whilst I watched several insects—I think mostly grasshoppers—were captured by all four birds and were swallowed immediately in the usual manner.

Although I have often watched them I have never previously observed such behaviour by feeding Buff-backed Herons ; but, although an isolated incident, it seems worth recording as the unhesitating and purposive manner in which the bird acted suggested a habit of some standing.

DEREK GOODWIN.

MUTE SWAN EATING DEAD FISH.

ON March 22nd, 1947, at Barrow-on-Trent, I found well over a hundred dead Roach (one I examined measured $6\frac{3}{4}$ inches long and was in good condition) floating on their sides on a shallow pond, which had previously been frozen solid.

A male Mute Swan (*Cygnus olor*) snapped savagely at one of the fish a few times, then swallowed it with his head under water. He then withdrew his neck, held it erect, and gulped, and I saw the lump caused by the fish travel down quickly. He drank and swallowed three more under water, after first vigorously swinging each by the tail, from side to side, in the air. The fourth fish was considerably larger and he had difficulty with it from the start : he swung it so energetically that its head flew off, and then took it under water for a longer time (about half a minute). When he withdrew his neck the fish was lodged crossways in his bill and he only succeeded in swallowing it after much gulping.

The Handbook mentions this species occasionally taking small (presumably living) fish (only Bleak (*Alburnus*) recorded), but does not mention dead fish.

DEREK C. HULME.

BLUE-WINGED TEAL IN LINCOLNSHIRE.

ON October 23rd, 1947, Messrs. A. E. C. Chambers, C. N. Langford and myself had the opportunity to study at close range a drake

Blue-winged Teal (*Anas discors*) on a pond in Mr. A. W. S. Dean's garden, Sudbrook Manor, Grantham. It was swimming about in company with various introduced wildfowl.

Mr. Dean informed us that it arrived as long ago as September 10th, 1941, and, although enquiries were made, no trace as to where it had come from could be found. It was then immature and identification was not claimed as definite until it had assumed adult plumage. In 1941, Mr. Dean had one drake Teal (*A. c. crecca*), three pairs of Wigeon (*A. penelope*) and three pairs of Pintails (*A. acuta*) and the Blue-winged Teal immediately settled down with them, and has remained ever since. Occasionally it flies away during the day, and Mr. Dean believes it goes into fields in the valley below, but he has never been able to locate it. It always returns either at dusk or dawn.

When we saw it, it was in full plumage, and answered exactly to the description given in *The Handbook*. The white crescent in front of the eye was very marked, but as it swam around the typical colours on the shoulders were not visible. As it rose on the surface, however, to flap its wings the three colours were very brilliant—the blue, the white and the metallic green speculum exactly as shown on Plate 20. Mr. Dean said he had never heard the Blue-wing make a sound all the time he has had it. It was fairly sociable with the other wildfowl, but it noticeably preferred the company of the Pintails, even to the Wigeon.

Mr. Dean told us that on August 17th, 1945, another bird flew in, which he feels quite certain was another immature drake Blue-winged Teal. This stayed for several days and then flew away. His identification was based on his knowledge of his own Blue-wing when it arrived in its immature state in 1941.

This history would appear to lend weight to Mr. R. M. Garnett's suggestion in his note (*antea*, Vol. xl, p. 281) that Blue-winged Teal may be breeding in a feral state in Lincolnshire.

P. P. L. STEVENSON.

DISPLAY-FLIGHT OF CORMORANT.

WITH reference to the notes by W. R. Robinson and E. O. Höhn and P. H. T. Hartley on the display-flight of the Cormorant (*antea*, Vol. xl, p. 282 and Vol. xxxix, p. 157) the following may be of interest.

On March 10th, 1944, I found a colony of Cormorants (*Phalacrocorax c. carbo*) with 7 nests near the top of a tall cliff in N.W. Donegal, each nest being occupied by a sitting bird. Two other Cormorants were indulging in a curious rigid flight up and down the cliff face in front of the nests. They flew with half-closed wings which beat rapidly and mechanically, each beat followed by a definite pause.

Every so often the birds would glide down at a steep angle and when considerable speed had been reached they pulled up sharply

in a very steep ascent. No tumbling was observed. Two or three of the sitting birds watched these actions intently, their heads turning first one way then the other to follow the flying birds as they went by. Soon after, a flying Cormorant settled by the nest of one of the watching Cormorants and the latter went through the display (No. 2 of *The Handbook* under Southern Cormorant).

E. DUFFEY.

[As previously pointed out in the Additions to *The Handbook*, Vol. v, p. 279, the display mentioned at the end of Mr. Duffey's note is characteristic of the bird on the nest and not, as was formerly supposed, of the female.—EDS.]

GANNET TAKING BREAD AT SEA.

WITH reference to the note under this heading (*antea*, p. 26), when crossing the Minch to Harris on August 9th, 1937, I saw two adult Gannets (*Sula bassana*) join the Herring-Gulls (*Larus a. argentatus*) and Lesser Black-backed Gulls (*L. fuscus graellsii*) following the mail steamer "Lochmor." Both Gannets plunged several times in the wake of the ship, close to the stern, after bread and scraps thrown overboard. This was the first time I had seen Gannets actually plunging for food thrown from ships, although on May 4th, 1933, single adults on two occasions, for short periods, joined the gulls accompanying the mail steamer, between Eigg and Mallaig.

Miss Nancy Henderson informs me that she saw a Gannet, with the usual gulls following in the wake of the mail steamer "Lochearn" near Duart, Mull, in October, 1944, and watched it plunge in after scraps several times.

JAMES W. CAMPBELL.

WITH reference to Kenneth Williamson's note on a Gannet (*Sula bassana*) taking bread at sea (*antea*, p. 26), I have amused myself (in past days!) by throwing biscuits from the steamer between Tiree and Barra for a following Gannet to dive at and eat.

SETON GORDON.

LATE TRILLING OF LITTLE GREBE.

A PAIR of Little Grebes (*Podiceps r. ruficollis*) which had bred at Rotton Park Reservoir, Birmingham, during the summer of 1946, continued to trill fairly regularly until December, when they departed. The Chart in *The Handbook of British Birds* shows no song between early October and mid-January. MAURICE LARKIN.

[At Tabley Mere, Cheshire, I have heard Little Grebes trill on December 26th, 1943 (frequently), on January 8th, 1944, and on October 27th, 1945.—A.W.B.]

NOTES OF WOOD-PIGEON.

The Handbook, whilst dealing fully with the other normal utterances of the Wood-Pigeon (*Columba palumbus*), does not mention the nesting-call. This is a groaning "oorh-oooh," the former note

usually very strained and low, often almost inaudible at a little distance, the second louder and more vehement. There is frequently some variation of tone and inflection even in the notes of the same bird, but they are always quite distinct from both the song and the display notes, although the suggestion of straining intensity with which they are delivered is suggestive of the latter.

The following utterances of the Wood-Pigeon also seem worth recording in spite of my having no evidence as to their exact implication.

On April 6th, 1946, I was in a thick conifer plantation in Yorkshire where many Wood-Pigeons were commencing to nest. It was then about an hour after dawn and the song and nesting-call were heard constantly on all sides. Owing to the thickness of the young trees it was possible to ramble about quite unseen by the birds and to approach closely to any bird calling, but almost impossible ever to get a clear view of a bird at its nest-site. I heard uttered a groaning emphatic coo very much like the second note of the nesting-call followed without a break by a peculiar interrupted note suggesting very soft, stifled, panting laughter followed by a second groaning coo. This was repeated several times at intervals. I finally got very close to the nest, but was unable to see what the birds were doing, although both were on the nest together and in the end saw me and took wing. On June 3rd, 1946, I heard the same notes again under similar circumstances, but in a different plantation, and on this occasion noted down . . . "am inclined to think that the bird that utters the laughing note may not be the one that is cooing . . ."

On June 6th, 1946, in a plantation in Yorkshire a Wood-Pigeon flew in, perched on the bough of a scrub-oak and uttered a soft low version of the song. A fledged young bird on a lower bough answered with a squeaking appeal for food and the adult hopped down to the same branch and commenced to feed it. Between each bout of feeding it uttered a low purring "oorh" just before recommencing. It would seem of interest to ascertain if this soft version of the song is the normal utterance under such circumstances, as the Stock-Dove (*Columba oenas*), Rock-Dove (*Columba livia*), Palm-Dove (*Stigmatopelia senegalensis*), and Domestic Collared-Dove all utter a soft variation of their usual cooing as an indication of readiness to feed their young, when these have left the nest, but in these birds there is not any marked and constant difference between the song and the nesting-call that can with certainty be detected by human ears, as is the case with the Wood-Pigeon.

DEREK GOODWIN.

WOODCOCK CARRYING YOUNG.

ALTHOUGH the question whether Woodcock (*Scolopax rusticola*) ever carry their young is no longer a matter of doubt, the following incident may be worth recording.

While I was walking through a thick fir plantation on June 1st, 1947, a young Woodcock got up at my feet, and flew a distance of about 10 yards; this was followed by a second young bird which flew about 20 yards. The adult bird, which I had not yet spotted, then followed and picked up the first young one, holding it against its breast with its bill and supporting it from beneath with its feet, and flew with it to a point beyond the second young bird. I then noticed that there was a third young one remaining, crouched beneath some dead branches at my feet. As I stooped to pick it up, I saw the adult bird flying in from a different direction, as though to collect the remaining young, and almost striking my hand in passing. A ring was placed upon the young which I held, but the other two could not be found again.

J. S. WIGHTMAN.

LATE COMMON SANDPIPER IN SCOTLAND.

A COMMON Sandpiper (*Actitis hypoleucos*) appeared on the River Deveron near Turriff on October 21st, 1947. Always frequenting the same stretch of river (here forming the boundary between Banffshire and Aberdeenshire) it was seen several times during the ensuing week and last on October 31st. Although it is not very rare for Sandpipers to winter in England there seems to be no definite record of this for Scotland, and the end of October must be a very late date for one to be seen on migration so far north. *The Handbook* mentions records for Fair Isle, November 2nd, 1908, and the Clyde, November 14th, 1921. October, 1947, was a singularly mild month in N.E. Scotland.

ADAM WATSON.

"INJURY-FEIGNING" OF OYSTER-CATCHER.

"INJURY-FEIGNING" by the Oyster-catcher (*Hæmatopus ostralegus occidentalis*) has been recorded three times in the British Isles (*antea*, Vol. xxxix, p. 60 and Vol. xl, p. 284). On August 17th, 1947, E. H. Gillham and I found two young birds with the adults in a North Kent locality. One of the adults, after flying up, landed on the shore at least 100 yards from the young and quite 70 yards from us, for by then we had left the nest, and stumbled along in a typical "injury-feigning" manner. It continued its progress into the water, wings still half open and sweeping the surface, then, when it appeared to be going out of its depth, it rose and flew away.

E. M. CAWKELL.

UNUSUAL NESTING-SITE OF HERRING-GULL.

EARLY in May, 1947, a pair of Herring-Gulls (*Larus a. argentatus*) built a nest on the deck of a small yacht moored in the harbour of the River Yealm, South Devon. This yacht was not in commission and had lain at its moorings almost unvisited since before the war. It was, however, lying among tenanted craft in the midst of the

harbour traffic and about half a mile distant from the nearest cliff-nesting Herring-Gulls at the mouth of the river. Three eggs were laid towards the middle of May, of which one was stolen, the remaining two being incubated until June 2nd, with both birds of the pair in constant attendance. On this date the yacht was towed away to a Plymouth boat-yard and the nest and eggs thrown overboard. After following the yacht for a short distance out to sea, the gulls returned and took up residence on a hulk in the harbour, but made no further attempt at nesting. O. D. HUNT.

LESSER BLACK-BACKED GULL PERCHING ON TREE.

As *The Handbook* has no record of the Lesser Black-backed Gull (*Larus fuscus graellsii*) perching in trees, it may be of interest to report that on August 30th, 1947, I watched an adult of this species resting on a slender dead branch at the top of a thirty-foot oak on the bank of the river Leven, half a mile from the foot of Windermere Lake. It remained there for at least ten minutes. On the following day an adult Common Gull (*Larus c. canus*) alighted for a moment on the same branch. J. A. G. BARNES.

SCANDINAVIAN LESSER BLACK-BACKED GULL IN ANGLESEY.

ON September 10th, 1947, in Malltraeth Bay, Anglesey, we saw a Great Black-backed Gull (*Larus marinus*) and a Lesser Black-backed Gull (*L. fuscus*). The smaller bird had vividly yellow legs and the colour of its back, wing-coverts and scapulars was so dark as not to be visibly paler than that of the dark portion of its primaries; moreover this area was fully as dark as in the adjacent *L. marinus*. The birds were seen at close quarters in good light by both of us. Clearly the Lesser Black-backed Gull was of the Scandinavian sub-species (*L. f. fuscus*). On the same day in the same locality four other gulls were seen in flight which were very probably of this sub-species. On September 13th, one of us (H.P.) saw two birds at Moelfre which were certainly *L. f. fuscus*. In neither bird was the colour of the upper-parts noticeably paler than that of the dark portion of the primaries and the birds were seen both at rest and in flight in good light at close quarters. They had yellow legs and were of about the same size as some Herring-Gulls (*L. argentatus*) which were near by.

We have found no recorded occurrences of this sub-species of the Lesser Black-backed Gull in Anglesey, nor indeed anywhere in North Wales, though it is regularly seen on the Lancashire coast.

N. W. CUSA AND H. PLIMMER.

GREAT SKUA IN GLAMORGANSHIRE.

ON SEPTEMBER 12th, 1946, we observed a Great Skua (*Stercorarius s. skua*) at Font-y-gary Bay, Rhoose, Glamorganshire. When first

observed from a distance, it was thought to be some large immature gull. A closer approach showed that the upper-parts were dark brown, the under-parts brown mottled with rufous, and the tail-feathers black. After allowing us to approach within 3 yards, it took flight, when the white patch on the wing was clearly seen and the white base of the tail to a lesser extent. The bird was evidently in an exhausted condition, as it landed some 10 yards away and again allowed a near approach.

This appears to be the ninth definite record of this bird in Glamorganshire.

J. D. R. VERNON, K. S. MACGREGOR AND R. F. C. ZAMBONI.

ARCTIC TERN SCAVENGING.

WITH reference to Kenneth Williamson's note (*antea*, p. 31) under the above heading, describing Arctic Terns (*Sterna macrura*) feeding on fish dropped by Puffins (*Fratercula arctica*) outside their burrows, it seems worth recording that when I was at Akureyri in Iceland in 1938, the town's rubbish heap was frequented by many Arctic Terns feeding on refuse.

SETON GORDON.

BEHAVIOUR OF RAZORBILL.

I WAS watching the auks off St. Albans Head, Dorset, on June 8th, 1947, and observed a possible form of display on the part of a (presumed) pair of Razorbills (*Alca torda britannica*). The two birds were swimming together on the sea. Suddenly they took off one after the other and then dropped their tails and heads nearly vertically and flew along with their wings beating very slowly at full stretch. After several yards of this, they plunged into the water to reappear and swim normally again. Later, I saw one bird of three flying together do the same thing without the final plunge.

J. P. PAIGE.

COURTSHIP-FEEDING OF SCOTTISH CROSSBILL.—Through an error due to the illness of the Editor the photograph of the male feeding the female reproduced as plate 14 in the series of photographs of the Scottish Crossbill (*Loxia c. curvirostra*) by Mr. Eric Hosking was not that which it was originally intended to use. This photograph, showing the cock in the actual act of introducing the food into the female's mouth, is so striking that we now reproduce it on plate 15, as an addition to the series.

REED-WARBLER IN PEMBROKESHIRE.—With reference to the record under this heading (*antea*, p. 85), Mr. G. C. S. Ingram kindly informs us of a third previous record for the county, hitherto unpublished. A Reed-Warbler (*Acrocephalus s. scirpaceus*) was noted singing in Tenby Marsh from June 1st to 4th, 1931, by the late Bertram Lloyd.

HERRING-GULL BREEDING IN EAST KENT.—It is regretted that through a misunderstanding a note under this heading (*antea*,

Vol. xl, p. 378) was misleadingly worded. The intention of Dr. Harrison's communication was to record an extension of the East Kent breeding range into Thanet. The Herring-Gull is well known to breed in large numbers on the cliffs near Dover.

SPOONBILL IN CO. WEXFORD.—Mr. R. E. Pochin informs us of a Spoonbill (*Platalea l. leucorodia*) on the Ballyteige Marshes, Co. Wexford, seen on May 29th-30th, 1947, by himself and others..

LETTERS.

CABINET COLOUR CHANGES IN BIRD SKINS.

To the Editors of BRITISH BIRDS.

SIRS,—Messrs. Wagstaffe and Williamson's paper (*antea*, Vol. xl, pp. 322-325), on the cabinet colour changes in bird skins, will be read by all workers in systematic ornithology with great interest.

That these changes occur is of course well known, and the value of the communication lies principally in indicating in what species these effects occur and to what extent, while it is equally important to determine what factors are operating to produce them. In this matter those in charge of the public museums can surely render a great service by such an investigation as the authors of the paper suggest, by a painstaking check up of all factors involved both with regard to the preservation and storing of specimens. Those amongst us who have had occasion to examine extensive series of various species can usually cast out specimens which, from one cause or another, have become unreliable, and in all cases where a type is very old the careful systematist does not hesitate to mention this.

I find it difficult to believe that, as suggested by the authors, such experienced workers as those responsible for *The Handbook*, could possibly have been so misled as to have used "foxed" examples of the Song-Thrush for the descriptions of that species and its races in that valuable reference work!

It seems to me that the matter of the communication has been subjected to over-emphasis, and that the serious implications set out therein by the authors are not in actual fact as alarming as is represented.

With reference to the substitution of verbal descriptions—this is I fear no answer, for to accomplish this successfully necessitates a most accurate colour discrimination and an aptitude for description not universally possessed.

Anyone who has tried to elucidate any group of birds, where several races have been separated on colour, from the published descriptions of various authors will have realized the inadequacy of words. I have already called attention to these problems in my paper on *Fringilla cœlebs* (*Ibis*, 89, pp. 411-418), which well illustrates this comment.

That the subject deserves close attention no one will dispute, but let this, certainly in its preliminary stages, be devoid of sensational misconceptions and representations.

JAMES M. HARRISON.

COLOUR CHANGES IN PLUMAGE.

To the Editors of BRITISH BIRDS.

SIRS,—With reference to the article "Cabinet Colour-changes in Bird-skins" etc. I venture to point out that in Mallard (*Anas p. platyrhyncha*) the head of the male in winter and early summer shows a change from green with some over-gloss of violet-purple during most of the period to a deep purple during a short period prior to the moult to eclipse. In other words, there is a colour change as the plumage "withers" before the moult. HENRY BOASE.

NOTICE TO CONTRIBUTORS.

British Birds accepts papers and notes dealing with original observations on the birds of the British Isles and Western Europe or, where appropriate, on birds of this area as observed in other parts of their range. Review articles on subjects of current ornithological interest will also be considered.

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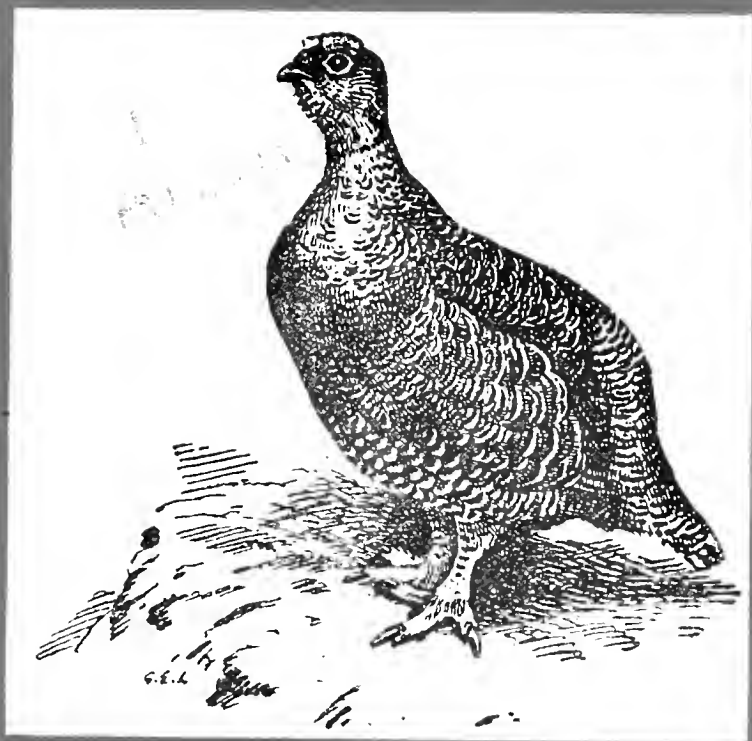
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FURTHER NOTES ON CLUTCH AND BROOD SIZE IN THE ROBIN

BY

DAVID LACK

(Edward Grey Institute of Field Ornithology, Oxford).

(Concluded from p. 104).

Local differences: As pointed out in the earlier paper, there are very marked local variations in nesting success, and four examples of this, obtained in 1946, are given in Table IX.

TABLE IX. Local Variations in Hatching and Nestling Success, 1946.

		No. nests found during laying).			Clutch hatched			No. nests found (before hatching).			Brood safely flew:		
		All	Part	None	All	Part	None	All	Part	None	All	Part	None
1.	Berkshire (B. M. A. Chappell)	17	7	1	9	10	6	—	4				
2.	Berkshire (D. Lack)	—	—	—	—	12	7	1	4				
3.	Montgomeryshire (J. H. Owen)	... 17	8	2	7	22	17	3	2				
4.	Ross-shire (J. Lees)	24	13	9	2	25	18	3	4				

		Number of eggs		Percent. hatched.	No. of young hatched.		Percent. leaving nest.		Egg-fledging success.
		laid.	hatched.		nest.	nest.			
1.	Berkshire (Bagley) ...	90	47	52%	47	28	60%	31%	
2.	Berkshire (Wytham)	—	—	—	58	36	62%	—	
3.	Montgomeryshire ...	95	52	55%	108	98	91%	50%	
4.	Ross-shire ...	135	114	84%	126	101	80%	67%	

NOTE.—Compare with Tables XIII, XIV and XV of previous paper.

LAYING SEQUENCE.

During the laying period, one egg is normally laid each day, but sometimes there is a gap of a day. As shown in Table X, such a gap is commoner in small than large clutches, suggesting that some of the small clutches may be due to a misplaced egg. There is no evidence that such gaps in laying are commoner at one season of the year than another, except that during a cold spell a nest may be deserted altogether, in which case the hen sometimes returns there to lay again later.

TABLE X. Continuity in Laying.

		<i>Number of eggs in which</i>				
<i>1 egg laid</i>		<i>1 day</i>	<i>2 gaps</i>	<i>3 gaps</i>		
<i>per day.</i>		<i>omitted.</i>	<i>of 1 day.</i>	<i>of 1 day.</i>	<i>7 days gap.</i>	
<i>c/2</i>	...	—	—	—	—	1
<i>c/3</i>	...	3	1	1	—	—
<i>c/4</i>	...	8	3	2	—	—
<i>c/5</i>	...	30	8	—	1	—
<i>c/6</i>	...	28	4	—	—	—
March	10	1	—	—	—	—
April	...	43	11	2	—	1
May	...	15	4	—	1	—
June	...	3	—	1	—	—
July	...	1	—	—	—	—

Two personal records and three submitted by correspondents indicate that egg-laying normally takes place between soon after dawn and 8 a.m. sun-time.

INCUBATION PERIOD.

Records submitted during this enquiry, together with those of the British Trust for Ornithology Hatching and Fledging Inquiry and those published in the literature, provide 121 records of incubation periods for the Robin in Britain, which are summarized in Table XI. The chief point of interest is their variability.

Although all observers date the start of the incubation period from the laying of the last egg, some probably date its end from the hatching of the first instead of the last nestling. In most nests, all the young hatch on the same day, but sometimes one or two chicks hatch a day after the others. Hence an error may be introduced, but it is only a small one, and it is not the main cause of the recorded variability.

This variability is chiefly due to the fact that, while the hen Robin usually starts incubation with the laying of the last egg, she sometimes does so only intermittently or not at all on this day, while occasionally there is a gap of two days, and exceptionally of longer. There are also cases in which she starts incubation with the laying of the penultimate egg. In these circumstances hatching may be spread over two days, but this does not always follow, presumably because incubation is sometimes erratic on the day of the penultimate egg. The data were insufficient to determine the frequency with which incubation starts with the penultimate egg, the final egg, or a day later. However, the data in Table XI show that, on the average, the incubation period is half a day shorter for May-June nests than it is for March-April nests. This shorter average is mainly due to a greatly reduced number of incubation periods as long as 15 or 16 days in May-June nests, and suggests that in May-June the hen rarely postpones incubation after the laying of the last egg, whereas in March-April nests such a wait is

not uncommon. The impression was also formed, but further data are needed, that the hatching of the young over two days instead of one is commoner in late than early clutches, and commoner in clutches of 6-7 eggs than in smaller clutches, suggesting that incubation from the penultimate egg is commoner in late than early nests and in large than in small clutches.

TABLE XI. Incubation Period.

No. of days.	<i>No. of records for clutches completed during</i>		
	<i>March-April.</i>	<i>May-July.</i>	<i>No date.</i>
12	6	6	2
13	18	14	6
14	21	14	7
15	16	3	1
16	3	1	—
19	1	1	—
21	1	—	—

Average incubation period March-April nests 14.0 days (67 clutches).

Average incubation period May-July nests 13.5 days (39 clutches).

It is not known whether the incubation rhythm of the hen Robin after the first day appreciably affects the incubation-period. This rhythm is highly variable. Many hens leave the nest two or three times each hour during the day for short intervals, during which they are fed by the cock. They also preen vigorously and pick up some food for themselves. At one nest, watched by the writer from 7.50 a.m. to 2.50 p.m. sun-time on June 3rd, 1945, this being the twelfth day of incubation, the hen came off the eggs 16 times in 7 hours. At another nest, watched by E. T. Silva and the writer from 6.10 a.m. until 6.10 p.m. sun-time on April 23rd, 1946, this being the 9th day of incubation, the hen left the eggs 25 times in 12 hours. Her 24 completed periods of sitting averaged 23 minutes, her longest period on being 80 minutes when human intruders were near the nest, her next longest being 51 minutes, her shortest 6 minutes. Her times off varied between 3 and 10 minutes, averaging 6.4 minutes. She incubated for 78% of the total time. Another hen seemed to be sitting for much longer periods, as during a two-hour watch on the second and again on the fourth day of incubation, she did not once leave the eggs. E. T. Silva and the writer watched at this nest from 6.50 a.m. until 4.50 p.m. sun-time on May 26th, 1946, this being the 10th day of incubation. During this time the hen left the nest only 6 times in 10 hours. Her 5 completed periods of sitting averaged 96 minutes, her longest period on being 140 minutes, her shortest 70 minutes. Her periods off varied between 8 and 21 minutes, averaging 14 minutes, and she incubated for 86% of the total time. Other short and other very long sitters were observed during 1947, but the average duration of a sit cannot be indicated, because the nests of short sitters are much easier to find than those of long sitters, so that the former unduly predominate in the studied example.

NESTLING (FLEDGING) PERIOD.

Data were collected on 137 nestling (fledging) periods, from the same three sources as for the incubation periods. This total excludes nests at which the observer explicitly stated that he disturbed the birds, causing premature flying, but undoubtedly a number of such cases have inadvertently been included. At one disturbed nest, the young left when only nine days old, and probably all nestling periods of less than 12 days are due to disturbance. Of course not all of these are due to human disturbance. Thus in two cases at Wytham, near Oxford, the young left prematurely because a Mole came up under the nest. Observations at Wytham also suggest that premature flying is commoner in late than early nests. This is probably one reason for the fact, shown in Table XII, that the nestling period is on the average rather shorter in late than early nests.

TABLE XII. Nestling Period.

Period in days	For young hatching			Broods of				
	April	1-May	15 Later	No date	1-3 young	4 young	5 young	6-7 young
10		2	2	—	2	1	1	—
11		3	3½	—	1	—	4	1½
12		7	6½	2	3½	1	4	4
13		17	11½	1	8½	2	12	5½
14		29½	18	5	7	6	22	10
15		14½	5	1	3	1½	10	4
16		4	½	3	—	1½	2	—
18		1	—	—	—	—	1	—
Average Period	13.7	13.2	—	—	13.1	13.7	13.7	13.4

NOTE—The apparently shorter average nestling period for broods of 6-7 young as compared with broods of 5 young is due to the fact that most of the former, but only some of the latter, were in later nests, hatched after May 15.

While many of the differences in nestling period are due to disturbance, others seem due to small differences in the rate of development of the young, but this point is still under investigation.

When one member of a brood leaves, this normally stimulates the rest to leave. Hence all the young tend to leave on the same day, though sometimes several hours apart. This tendency usually holds even when some of the young hatch a day after the rest, in which case some of the brood have a nestling period a day shorter than the rest. For analysis purposes in Table XII, the nestling period has in such cases been classified as ½ under both of the times concerned. A few cases also occurred in which some of the young left one or two days ahead of the rest, but all cases of a two-day difference, and most cases of a one-day difference, occurred at disturbed nests.

Weighing experiments at Wytham involved handling the young once each day from the day of hatching. Most of these young got

completely accustomed to the procedure; they did not struggle, defæcate or call when handled, rested quietly in the carton used for weighing, and then stayed quietly when replaced in the nest. They did not leave the nest prematurely, but on the 14th, 15th or 16th day, as normally. The behaviour of these birds was in marked contrast to that of young weighed for the first time when 10-12 days old, which struggled, defæcated, and called when handled, and would not stay when replaced in the nest, so that they left prematurely. It seems remarkable that one should be able to check the instinct to leave the nest due to disturbance merely by handling the birds once each day after hatching.

INTERVAL BETWEEN NESTS.

Insufficient figures are available to determine the average period between the flying of the first brood and the laying of the second clutch. Not infrequently, the first egg of the second brood is laid 1-3 days before the first brood leave the nest, but in other cases not until 1-12 days afterwards. There is one record of an interval of as long as 21 days, apparently without an overlooked attempt in between, as the hen used the same nest-site (Ryves, 1941).

When a clutch was destroyed in Wytham, the first egg of the new clutch followed in one case 4 days later, and in another case 5 days later, there being a possible error of ± 1 day in these records. When a brood of half-grown young died, the first egg of the new clutch followed in one case 4 days later and in another case 8 days later. J. Walpole Bond (*in litt.*) records an interval of 8-10 days between the loss of a clutch and the first egg of a new clutch, Ryves a period of 9 days, while when a brood of young died in the nest the first egg of a new clutch was laid 14 days later (Ryves, 1943).

MECHANISM OF CLUTCH-SIZE.

Birds are usually classified into "determinate" and "indeterminate" layers. In the former group, which includes so far as known only pigeons, limicoline birds and gulls, no additional eggs are laid if part of the clutch is removed during laying, but in the latter group other eggs follow, until the clutch is made up to the normal number. Observations by Aflalo (1898) show that the Robin, like other passerine birds, comes in the "indeterminate" class, as, by removing part of the clutch, he was able to induce the laying of up to 10 or more eggs. However, there may be individual variation in this matter, as D. J. May (*in litt.*) states that the removal of one egg from an incomplete clutch of four, and of two eggs from another incomplete clutch of four, was in each case followed by the laying of only one further egg, i.e. the Robin laid the normal number of five eggs and no more.

The term "indeterminate" is not altogether satisfactory, as this would suggest that the experimental addition of eggs during laying should cause fewer to be laid. So far as known, this does not

usually happen in song-birds, though critical experiments are badly needed. There are many cases, including several in the Robin, where two hens have laid in the same nest, and in such cases both hens have laid full clutches so that a clutch of double the normal size has resulted. Likewise Ryves (1928) observed a Robin's nest in which the hen had laid three eggs before deserting during a cold spell. She later returned to use this nest, but then laid not two more eggs, but a full set of five. W. Mair reported a clutch of eight eggs which was probably laid in similar circumstances.

That the clutch-size of the Robin is in some sense "determinate" is also shown by B. M. A. Chappell's observation that each egg in a small clutch weighs on the average rather more than each egg in a large clutch (*in litt.*, to be published later). Groebbels (1937) has shown that this is true of birds in general.

If the laying of the full clutch cannot be inhibited, it is interesting to know what happens when a Robin deserts its nest during the laying period, as happens not infrequently. In two nests observed by A. Whitaker, found with one and three eggs respectively, the bird laid her complete clutch before deserting, though the finding of the nest was presumably the reason for her desertion. Similarly, Chance (1940) reports that when a Cuckoo (*Cuculus canorus*) has laid in the nest of a Meadow-Pipit (*Anthus pratensis*), the latter often postpones desertion until the clutch has been completed. But in many other cases, in the Robin and other species, the nest is deserted before the clutch is complete. Are the remaining eggs then laid casually on the ground, or can they be re-absorbed?

MISCELLANEOUS POINTS.

In one case where two hen Robins laid in the same nest, each started laying on the same day and laid an egg on each of five days until ten were present. The two hens then incubated side by side. It would be interesting to know whether laying is usually synchronous when two hens lay in the same nest.

With a Robin c/7, the eggs are normally arranged with one in the centre and six round it. However, Hon. G. Charteris recorded one case in which the eggs were arranged in line: 1, 2, 2, 2. There was another case of this arrangement at Wytham, but only after the nest had been tipped sideways by a Mole passing just underneath it.

There are not infrequent records of a pair using the same nest for two successive broods in the same season, but it is much commoner to change the nest-site. There are also cases where the hen uses the same site in a following year, but this is uncommon. In one case at Wytham, in a territory with abundant suitable nesting-sites, the hen (presumably the same individual) placed her 1946 nest on the ground within six inches of her 1945 nest-site. It may be added that the old nest had gone from the site, as it was removed in 1945 to inspect it for parasites. In both years the clutch was

laid unusually late compared with that of neighbouring birds, the first egg being laid on April 17th in 1946 and on April 17th or 18th in 1945. A similar correspondence in laying time was found in three of four similar cases summarized in Table VIII of the previous paper. But the Wytham bird did not lay a clutch of the same size in both years, in 1945 c/6, in 1946 only c/5.

When an egg is cracked, the hen normally removes it within a day, but it is occasionally left. At one nest which I accidentally trod on, thoroughly smashing all the eggs, the hen returned and promptly started to remove the broken fragments. When an egg fails to hatch, it is usually left in the nest, under the young, but it is sometimes removed, so that clutch-size cannot safely be estimated from the number of young in the nest together with any unhatched eggs.

In English woods, most Robins' nests are placed on the ground, but nests up to six feet above the ground are not uncommon, ten feet up is occasional, and J. Fraser sent a record of a nest forty feet up in a hole in a tree.

SUMMARY.

1. This paper is a supplement to an earlier one, and the conclusions of the latter are confirmed. Additional points include the following :

2. There are significant differences in average clutch-size at the same season in different years.

3. Nesting success is highest in May, rather lower in April, and lower still in June and July.

4. Nesting success is approximately the same for clutches and broods of different sizes.

5. Both incubation and nestling period average 13-14 days, but both are somewhat variable, the causes of which are discussed.

6. If part of the clutch is taken during laying, further eggs sometimes, though not always, follow. But it seems that the addition of eggs during laying does not decrease the number laid. Hence the term "indeterminate layer" is not altogether accurate.

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APPENDIX I.—NESTLING SUCCESS,

<i>No. of young hatched. fledged.</i>		<i>No. of nests in</i>							
					<i>March.</i>	<i>April.</i>	<i>May.</i>	<i>June.</i>	<i>July.</i>
7	7	...	...	...	—	—	5	—	—
7	0	...	...	...	—	—	1	—	—
6	6	...	...	...	—	30	20	—	—
6	5	...	...	...	—	—	3	—	—
6	2	...	...	...	—	1	—	—	—
6	0	...	...	...	—	7	8	1	1
5	5	...	...	...	6	76	25	11	1
5	4	...	...	...	—	2	2	—	—
5	3	...	...	...	1	—	2	—	—
5	2	...	...	...	—	1	1	—	—
5	1	...	...	...	—	—	—	1	—
5	0	...	...	...	1	26	6	4	—
4	4	...	...	...	3	40	20	6	3
4	3	...	...	...	—	4	2	1	—
4	2	...	...	...	—	1	—	1	1
4	0	...	...	...	—	15	2	2	—
3	3	...	...	...	5	18	7	3	—
3	2	...	...	...	2	—	—	—	—
3	1	...	...	...	—	—	2	—	—
3	0	...	...	...	—	3	1	2	—
2	2	...	...	...	2	7	2	1	—
2	0	...	...	...	—	2	—	—	—
1	1	...	...	...	1	3	2	—	—

SIMULTANEOUS WATCH FOR MIGRANT SWIFTS, MAY 11th, 1947

Compiled for
THE BRITISH TRUST FOR ORNITHOLOGY

BY H. G. HURRELL.

IN the spring of 1947 the British Trust for Ornithology invited as many as possible of its members and others interested to undertake a simultaneous watch of the movements of Swifts (*Apus a. apus*) on a pre-selected day—May 11th, 1947.

PREVIOUS SIMULTANEOUS WATCHES FOR SWIFTS.

Five similar watches for migrant Swifts on a smaller scale had been carried out in the S.W. of England between 1935 and 1939 inclusive under the auspices of the Devon Bird-watching & Preservation Society and through the medium of the *Western Morning News*. The results of these watches are summarized:—

May 12th, 1935. Considerable passage N.E. This direction, if continued, would take them to the Eastern counties. They did not, however, arrive there until much later. Norfolk, May 18th and London, May 27th to June 2nd were given as arrival dates.

May 10th, 1936. Trend of Swifts to the N.E. as in 1935. Wind—light breeze from N.W.

May 9th, 1937. Swifts seen arriving on the S. coast flying S. to N. with the wind. Also seen on N. coast of Devon flying in from sea, very high and proceeding inland N. to S. Also coasting E. along the N. Devon coast. Wind—Fresh S. or SSE. with low cloud and periods of rain.

May 8th, 1938. Swifts were seen flying N. with the wind. A small passage. Wind—moderate E. then S.

May 14th, 1939. Direction of Swifts all between N.W. and N.E. except some W. Succession of arrivals noted at one point on South coast coming in with Swallows on very narrow front: surprising with bad visibility. Wind—N.W., dull.

OBJECTS.

The primary object of the watch on May 11th, 1947, was to ascertain the main directions taken by Swifts observed on migration throughout the country on a particular day with a view to studying the influence of climatic and other factors on their course. Their mode of flight and other data were also sought.

METHOD.

The method adopted was to obtain as many reports as possible from competent observers in the hope that we should have indications of any substantial movements which were taking place on that day. The results of former watches made it doubtful whether there would be much evidence of the same birds passing several observers. Likely participants were notified that the time, place, direction and estimated number of Swifts seen on the pre-selected

day would be required. Several other societies advised their members to this effect. Publication in the press of these requirements brought a good response.

The results were dealt with by summarizing the reports as they came in and then transferring this summarized material to lists. The original report was then filed after being numbered for easy reference. These lists provided conveniently accessible material for plotting the results on maps. Separate maps were used for indicating directions, birds recorded (no directions given), negative results and wind directions. A great deal of useful information regarding other dates was also sent in and this was mapped in a similar manner. Any of the maps can now be superimposed and viewed against a strong light for comparison.

The results obtained have, as a check, been compared with a cross-section of selected reports which because of their situation (e.g. islands) or the persistence of the movement observed are almost certainly records of genuine *migrant* Swifts. There is no substantial difference between the two sets of results. The unavoidable inclusion in the full material of a certain number of local birds foraging in all directions would not, presumably, have much influence in altering the general trend.

THE ARRIVAL OF SWIFTS IN 1947.

The pre-arranged date, May 11th, 1947, must be regarded in relation to the 1947 season as a whole in respect of Swift migration. The reports sent in show three distinct periods. These periods are easily compared by reference to the accompanying diagrams. They are:—

Diagram I. April 21st to April 30th. Prevailing wind W. Most birds were seen flying against the wind.

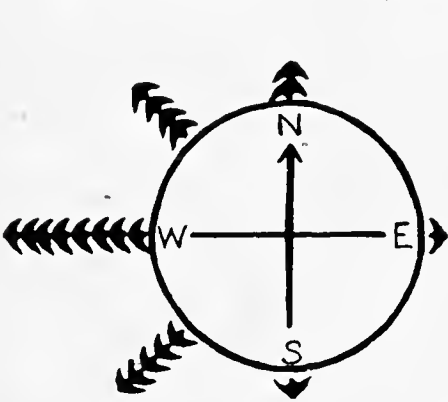


DIAGRAM I.—Period April 21st to April 30th, 1947. Prevailing wind, W.



DIAGRAM II.—Period May 1st to May 7th, 1947. Prevailing wind, E.

Diagram II. May 1st to May 7th. Prevailing wind E. Again the birds were seen flying against the wind although in the opposite direction to those seen in the first period.

Diagram III. May 8th to May 14th (excluding May 11th). Little wind, weather fine. A clear preference shown by the birds for heading N. In this case they were not flying against the wind which was light compared to the other two periods.



DIAGRAM III.—Period May 8th to May 14th, 1947 (excluding May 11th).
Little wind. Weather fine.

It may be pointed out that no evident northward trend was *observed* till after May 7th. Also the data obtained for the final period show a close resemblance to the more extensive data obtained for May 11th. May 11th was a fine day in the middle of a period of fine favourable weather.

RESULTS OF MAY 11TH.

General. Participants seem readily to have grasped the idea of what was required and the reports are generally of a high standard. The date selected seems to have been exactly right. The peak of a wave which arrived about May 8th appears to have reached the middle of the British Isles by May 11th. The number of reports sent in respecting May 11th was 435. In many cases a single report was compiled from the notes of several observers, so that the total number of observers easily exceeded 500. The number of Swifts reported can only be roughly assessed, but the figure might well be put at 5,000.

Weather. It was, in general, a very fine sunny day, although there was a certain amount of coastal fog. In the North of England rain and cloud were reported from certain areas. In some

places no wind whatever was discernible. Elsewhere it was very light and surprisingly variable. There were less reports of it blowing from the north than from other points of the compass. The diagram (V) on page 142 clearly shows the variability of the wind on May 11th, 1947.

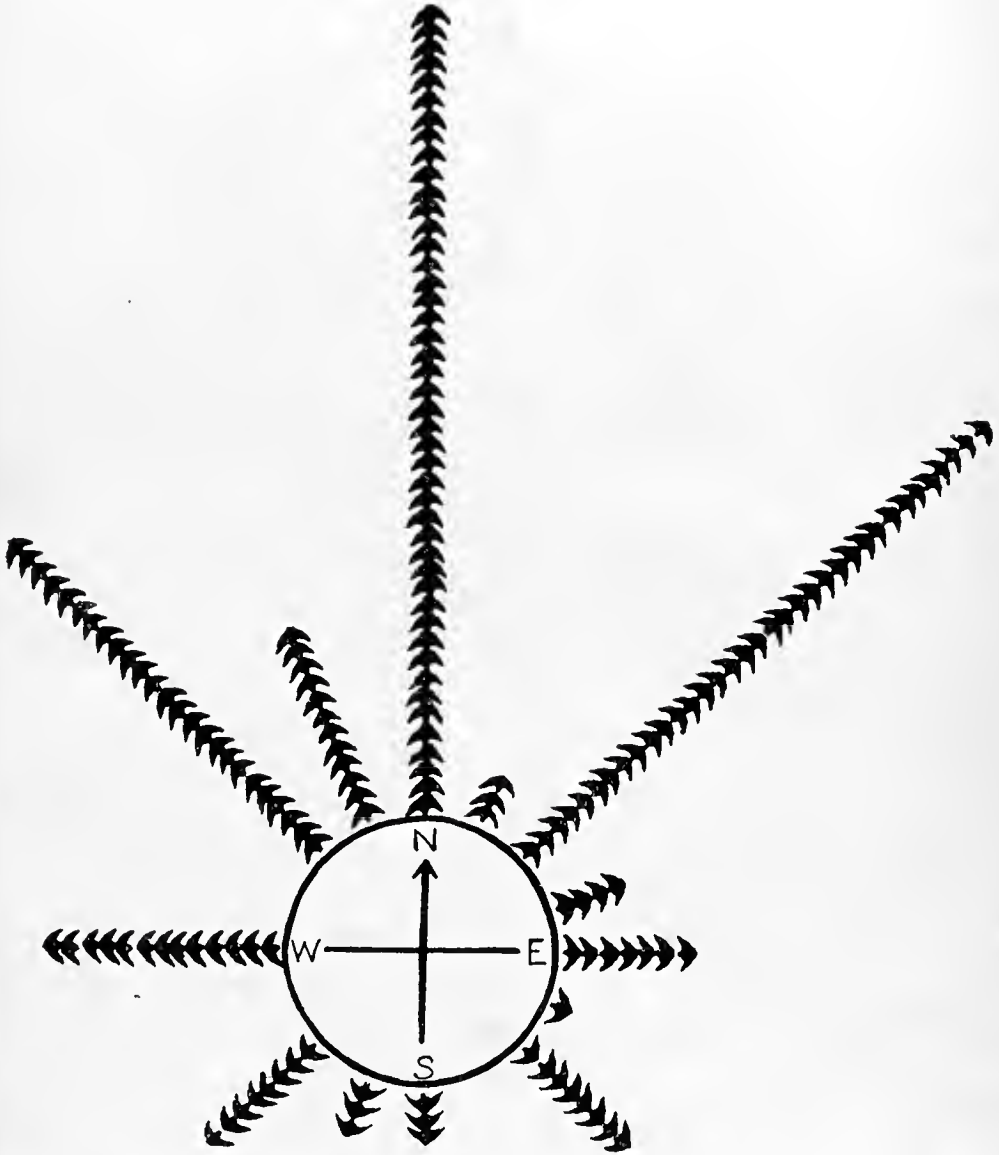



DIAGRAM IV.—Results for May 11th, 1947. In these diagrams each bird () represents a direction reported taken by Swifts.

Directions. Directions of flight were given in 191 reports and they show clearly that in the main the birds were travelling northwards. The very light variable wind was, on the whole, behind them. The Swifts heading to the west were balanced by those heading east, so that no preference can be shown for lateral movement to either side. The line of advance was, in general, from south to north.

The results thus show the Swifts' true objective, which, at the height of the spring migration, should obviously be in a northerly direction. The observed directions were, on May 11th, the true directions, and the slight variable wind was ignored. Earlier in the 1947 season the observed directions differed widely from the true direction. On May 11th there were, as usual, movements which were at variance with the main trend. Wind directions do not seem to provide a complete explanation for these deviations. The reports show little evidence of any reverse migration.

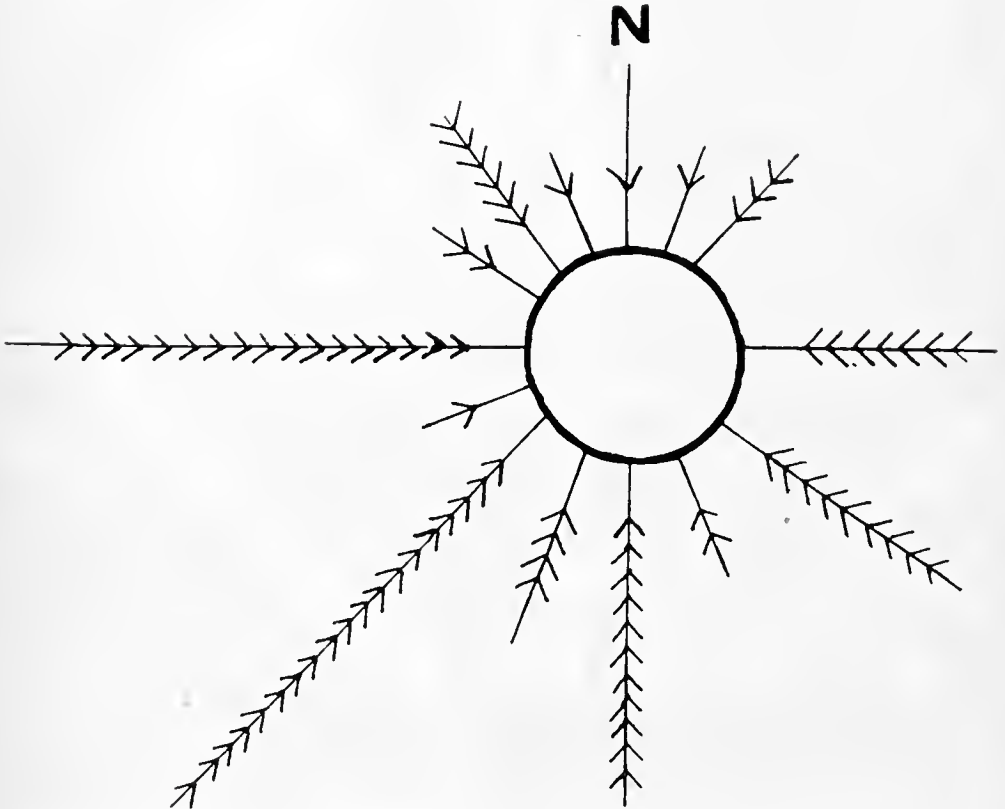


DIAGRAM V.—Wind directions reported by observers on May 11th, 1947.

Distribution. Allowance has to be made for the fact that there were more observers in the South of England than elsewhere. It is clear, however, that Swifts were widely distributed by May 11th. This is shown by the 319 reports of Swifts seen (both with and without directions). The largest contingents were reported in the Midlands. Coastal movements were at a minimum; otherwise distribution was fairly general. This is supported by the evidence of the 116 negative reports. These were widely scattered. They did not tend to group in certain parts of the country. An interesting point is that when the maps were compared there was little overlapping of positive and negative reports. Scottish breeding Swifts were only beginning to appear; the main arrivals were yet to come.

Mode of Flight. It was not a day for extremes. Most birds were flying at a normal height of, say, 30 to 100 feet. Many were higher and some were very high indeed. Others were lower than average, but few were very low; there was no strong wind to force them down. In some cases birds were flying straight towards their goal. In other cases they were circling and flying to and fro, but all the time tending towards a particular direction. Some observers saw a lone bird or a pair; others a single group of Swifts. The more fortunate watchers noted a succession of parties.

Breaks in the Journey. Special feeding grounds such as lakes, reservoirs and sewage farms were visited by large numbers of migrant Swifts. Their arrival and departure was observed in certain cases. The results also indicate that passage Swifts frequently pause in their travels at known breeding sites. In many instances they were seen to circle for a while above a site and then set off on another stage of their journey.

Some of the Reports for May 11th. Selected reports, illustrating various features, are given below:—

(Times given are B.D.S.T.).

Scilly Isles. None on May 11th. Some N.W. the day before and the day after.

Lundy Island. A few N.

Skokholm. A few came from S. and left the island heading N.E.

Knock John Fort, Mouth of the Thames. 1 W.; 1 WSW.; 2, 1, 1 WNW.

Plymouth. Several parties totalling some 80 birds completed their Channel crossing and proceeded N. inland. A strong team of observers manning the coast line for some distance on either side drew blank. Evidently successive parties made their point direct. This implies accurate navigating across a wide expanse of sea.

Hythe, Kent. A few Swifts passed W. along coast during day and a considerable flock of many dozens flew due W. at 11.40 a.m. Details as to wind show that it was WNW. earlier in the morning. From 11.30 a.m. to noon it was W. increasing to 9 m.p.h. Later in the day it backed SSE. and diminished till it ceased. Thus the main batch flew dead against the wind when it reached its maximum.

Great Pond, Frensham, Surrey, was watched from 5.55 a.m. No Swifts seen till 7.10 a.m. From then till 10.30 a.m. parties of a dozen to a score appeared, totalling 164 birds. These were counted arriving but others probably joined them unseen over the pond. Some seemed to come from the S. or S.E., but many were first sighted descending from a great height above the pond. They circled at a low altitude for 5 or 10 minutes and then for the most part circled away to the N. From 10.30 a.m. till after midday none were seen, though 75 to 100 were reported over the pond in the afternoon.

Tring and Wilstone Reservoirs. None. Unusual at this time of the year for none to be present.

Castle Hedingham, Essex. 5.15 a.m. to 10.15 a.m. None. 10.15 a.m. onwards during morning and 3.30 to 4.30 p.m. in the afternoon a succession of small parties came from the E. or S.E. and proceeded N.W. Most birds circled for a time above the Norman Keep of Hedingham Castle before continuing; only occasional birds passed on without a pause.

Pitlochry, Scotland. 9 a.m. Three arrived at a breeding site. They came from the S. Another Scottish report deserves mention, although it refers to the previous afternoon (May 10th) when at least 100 Swifts, in a straggling band, passed N.E. over the saddle joining "Scald haw" and "East kip" in the Pentland Hills. Nat. Grid Ref. 36/188609.

East Coast of Scotland. Certain points were very thoroughly watched with entirely negative results.

Sussex Coast and Norfolk Coast. Same applies.

OTHER MATTERS.

The time of day when Swifts first reach their breeding sites has been mentioned in a number of reports. In one case about 2 p.m. has been the time of arrival for several years in succession. In general this seems to be the least favoured time; either morning or evening being usual; 9 a.m. (B.D.S.T.) is a favourite hour for those arriving in the morning. The majority of Swifts, however, appear before roosting time in the evening.

Few Swifts were reported on the wing at an early hour: The larger flocks were almost without exception seen a considerable time after sunrise. Near nesting sites odd birds were sometimes seen before there was any general activity by the species.

There seem to be few cases where it is probable that the same birds were passing two or more observers. Pre-war watches were also disappointing in this respect.

Four observers claim to have seen copulation or attempted copulation, in flight.

SUMMARY.

On May 11th, the main objective of passage Swifts was northwards, the light variable wind being ignored. The largest numbers were advancing through the Midlands; coastal routes were very little used. Facts were obtained regarding their mode of flight and their habit of visiting sites and feeding grounds en route.

CONCLUSION.

It is concluded that the *observed* main direction on May 11th was the *true* direction. There are good reasons for thinking that if the watch had been held before May 7th there would have been a wide difference between these two directions. The watch has performed

the task of showing the birds travelling under conditions which enabled them to take a direct course. It would appear that a useful basis for future work has thus been provided. The next problem is the much more difficult task of trying to plot their devious courses when they are seen flying in directions which are not taking them straight to their objectives.

Finally, it may be said that the Swift has proved itself a good subject for this kind of investigation. Its migratory movements are not confined to the night. It seeks rather than avoids human habitations. This enables a more continuous watch to be kept than is possible with most birds. It is constantly in full view in the air. Not the least of its merits is that it is distinctive and can be identified accurately even at some distance.

THE INDEX OF HERON POPULATION, 1947

BY

W. B. ALEXANDER.

THE number of heronries on which reports for 1947 were received at the Edward Grey Institute was 158, or 13 less than in the previous year. Of these 122 were in England, 6 in Wales, 11 in Scotland and 19 in Ireland. We are indebted to 63 informants, of whom a number have collected information from friends and correspondents. Mr. R. A. Hinde has sent information on 19 heronries in Norfolk, Suffolk and Cambridgeshire; the Rev. P. G. Kennedy on 13 in six counties of Eire; Mr. G. des Forges on 9 in Sussex; Mr. R. Chislett on 8 in Yorkshire; Mr. P. I. R. Maclaren on 6 in Cornwall, and Mr. W. F. Davidson on 6 in Cumberland and Westmorland.

Mr. A. W. Boyd again supplied particulars for all known sites in Cheshire and South Lancashire; Mr. C. A. Norris for those in Warwickshire; Lord David Stuart for those in the Island of Bute, and Mr. W. S. Cowin for those in the Isle of Man. With the help of members of the Oxford Ornithological Society and London Natural History Society the writer obtained figures for all heronries known in the greater part of the Thames drainage area. Mr. Hinde's figures for Norfolk include all known sites in the eastern half of that county.

We have again received reports of a number of heronries not previously recorded, but none of them newly established. One in Hampshire with 14 nests in 1947, reported by Mr. A. G. Spencer, is said to have been long established; Mr. Maclaren reports one in Cornwall with 12 nests, which has been occupied for at least 5 years; Mr. Hinde one of 7 nests in Suffolk close to the Norfolk border; Mr. P. F. Hill one of 3 nests in the Broads district of Norfolk; Mr. D. R. Mirams one of 4 or 5 nests in Perthshire; Mr. R. B. Warren one with a single nest in Invernesshire, which had 4 nests in the previous year; and Dr. R. Carrick one of 4 nests in Sutherland, which has been in existence for at least 9 years.

Of the heronries counted in 1947, 116 were also counted in 1946, when they contained 2,010 nests. In 1947 these heronries only contained 1,300 nests, a decrease of 35 per cent. As the index for 1946 was 94 this gives an index for 1947 of 61.

Eighty-one of the heronries counted in 1947 were included in the 1928 census, when they contained 1,815 nests. In 1947 they contained 1,035 nests, giving an index of 57 per cent. In 1946 the index based on 1928 was 101, so that the decrease of the sample on this basis was about 44 per cent.

As in previous years we shall adopt as the most reliable index that based on a sample of heronries for which we have figures for one or more years when the population was normal (1928, 1936, 1937, 1938 and 1939). Of the heronries counted in 1947, 104 come into

this category. The average number of nests in these in normal years was 2,293, but in 1947 they only contained 1,241 or 54 per cent. The 1946 index on this basis was 94, so that the decrease was slightly over 40 per cent.

This exceptionally large decrease can safely be attributed to the exceptional severity of the winter 1946-47. The continuance of frost and of snowstorms from the last week of January to the middle of March throughout the country was unprecedented. Mr. J. H. Willis kindly informs us that the mean temperature of February 1947 at Norwich, was 28.2°F., the lowest mean temperature for any month in his records.

The percentages for individual regions, for which sufficient data are available, compared with the average, are:—

	1946	1947	Change
South-west England	93	46	- 47
South-east England	106	74	- 32
Thames Drainage Area	81	65	- 16
East England	89	49	- 40
Midlands	88	43	- 45
North-west England	97	40	- 57
Ireland	83	69	- 14

England and Wales	95	53	- 42
British Isles	94	54	- 40

It is unfortunate that the figures for Wales, North-east England and Scotland are so small that no reliable index can be based on them. This is at least partly due to the severe winter, as there was still deep snow in many northern localities during the breeding season of the Heron (*Ardea c. cinerea*). It is probable that the figure for the British Isles as a whole would have been even lower if more Scottish heronries could have been included in the sample.

Figures for the areas in which all known heronries were counted are shown in the following table:—

Area	1947	1946	1928
Thames drainage basin ... nests	267	c.348	305
(excluding Gatton, Surrey) heronries	18	19	17
Warwickshire nests	29	55	56
heronries	4	5	4
Cheshire and South nests	103*	242*	173
Lancashire heronries	8	8	8
Norfolk Broads district ... nests	109	144	
heronries	8	9	

*One isolated nest in each of these years not included in the total.

<i>Area</i>		1947	1946	1928
Norfolk except extreme west	nests	135		227
	heronries	11		17
Isle of Man	nests	9	9	
	heronries	3	3	none
Island of Bute	nests	19	10	
	heronries	3	3	

It will be seen that the counts of sample areas in England confirm the sample census for the whole country and indicate that in four different regions there was a very large decrease.

This is also shown by the figures from Sussex, where all the known heronries were counted except the one at Glynleigh, near Hailsham, which had 8 nests when last counted in 1940. In the ten heronries counted in 1947 there were 157 nests. This contrasts with about 294 nests in 8 heronries in the county in 1928, and 280 in 14 heronries in 1939, the last year in which the county was completely covered.

It will be noted that the two island populations, in contrast with those on the mainland, show no decrease. Lord David Stuart considers that in Bute the counter may have over-estimated the number of nests occupied, but, even if so, there was evidently no serious decline either there or in the Isle of Man.

In conclusion we must again thank the numerous correspondents without whose help this report could not have been prepared. The rate at which the population recovers from this unparalleled disaster will obviously be of great interest; we would therefore ask all our helpers to make special efforts to count the nests in as many heronries as possible in the spring of 1948 (if possible before May 10th), especially as the shortage of petrol is likely to prevent some from visiting as many heronries as they have done in the past. Results should be sent as soon as possible to the writer at the Edward Grey Institute, 91, Banbury Road, Oxford.

NOTES.

NUTCRACKER IN SUSSEX.

ON December 18th, 1946, I saw a Nutcracker (*Nucifraga caryocatactes* subsp.?) about two miles west of Turners Hill, Sussex. It flew across the road and settled in a tree about 35 yards away in full view. I was able to watch the bird for about three minutes, before it flew away.

In flight, the bird looked very much like a Jay (*Garrulus glandarius*), being about the same size, but lacking the white rump and having instead a thick white edge round the end of the tail and white under tail-coverts. The flight was jay-like and undulating. When perched on the tree, its long dagger of a beak was very noticeable and gave an impression of top-heaviness with its rather short tail. The primaries and tail (excepting the white hind border) were dark brown, almost black. Through binoculars, the white spots on the brown plumage were noticeable, but with the naked eye they merely made the bird look paler and did not stand out. It made no sound.

On December 23rd, I believe that I saw this bird again in flight, but was not able to be certain.

I. J. FERGUSON LEES.

COURTSHIP FEEDING OF LINNET.

A PAIR of Linnets (*Carduelis c. cannabina*) nested in our garden at Aylsham, Norfolk, in May, 1947, and during incubation the male was seen on one occasion feeding the female off the nest, the latter wing-fluttering and twittering as she received about twelve rapid deliveries of food apparently from the crop of the male.

This is not mentioned in *The Handbook*. R. A. RICHARDSON.

[Feeding of the female by the male was shown to occur throughout incubation in the case of a pair observed by J. N. Mead (*antea*, Vol. xxxix, p. 244) and will probably prove to be regular in this species.—EDS.]

"INJURY-FEIGNING" OF YELLOW BUNTING.

"INJURY-FEIGNING" by the Yellow Bunting (*Emberiza citrinella*) appears from *The Handbook* to have been recorded on only two occasions.

On May 10th, 1947 at Holt, Dorset, I disturbed a Yellow Bunting from its nest with two young under some bracken. The bird fluttered along the ground with one wing trailing.

DAVID J. CROUCH.

BLACK REDSTARTS IN SUSSEX, 1922-30.

THE publication of Mr. R. Cooke's paper (*antea*, p. 46) showing that Black Redstarts bred on Pett Level in 1909, and were present in most years from then onwards, makes it desirable that the whereabouts of the breeding pairs discovered by myself and reported by the late T. A. Coward (*antea*, Vol. xviii, p. 76; and *Birds of the*

British Isles, Vol. iii, p. 132) should be more exactly indicated. This site, at first reported as "cliffs in the south of England" was in fact on the cliffs between Hastings and Fairlight Glen. It was therefore quite different from Mr. Cooke's site at Pett Level, which is at least four miles to the eastward.

I first saw a pair of Black Redstarts under the cliffs near Fairlight on September 3rd and 6th, 1922. In 1923 and 1924 one pair bred in this locality, and in 1925 two pairs. After this I was not able to visit the locality regularly, but I have records of seeing Black Redstarts there in May and on July 4th and October 3rd, 1926, and on May 27th, 1928. On June 8th, 1930, I saw two family parties in the same locality. S. D. HERINGTON.

UNUSUAL SONG OF WILLOW-WARBLER.

I WAS walking during the evening of May 24th, 1947, through Kelleythorpe in East Yorkshire when I heard a Willow-Warbler (*Phylloscopus trochilus*) sing a stanza that was unusually long. After a few normal ones there came another protracted song. During the next three weeks I timed about fifty consecutive stanzas of the long singer's on eight separate occasions. To show to what extent the long stanza was unusual I also timed fifty stanzas from five other birds taken at random in the same area.

Both Nicholson (*Songs of Wild Birds*, 1936, o. 134) and Tucker (in Witherby *et al.*, *Handbook of British Birds*, Vol. ii, p. 9) give the duration of the stanza as about three to five seconds and neither suggests that much longer stanzas do occur. The figures in the table show how often this particular bird exceeded the usual length. The random samples are given for comparison.

Length of stanza in seconds.

	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	& 20
No. sung by long singer ...	9	80	130	71	37	17	11	6	17	10	9	2	5	1	1	1
No. sung by normal singers ...	30	113	78	18	6	2	2									

I do not know what stage in the breeding cycle the long singer had reached. The song was always heard within five yards of one spot. As it sang the bird behaved quite normally, constantly moving through the undergrowth, foraging as it went.

The long stanza often started very quietly with a rapid crescendo after about five notes. After the last note of the normal stanza the extended warbling began rising and falling sweetly. There was something of a Garden-Warbler's (*Sylvia borin*) persistent steadiness and yet it always had a quality peculiarly a Willow-Warbler's. Sometimes at five yards range the extra notes could

only just be heard, but at others it swelled out to full volume. I listened to scores of other Willow-Warblers at that time and never heard a single stanza extended more than an extra short phrase. There was no tendency for these long stanzas to come in groups. They seemed completely irregular.

The average rate of singing for the long singer was 4.1 stanzas per minute, and for the random samples 4.9 per minute.

I found no significant variation between the lengths of the stanza and the following silent period. In fact the figures in the following Table correspond surprisingly. I fixed an arbitrary limit of sixty seconds to any one silent period.

		<i>Length of silent period in secs.</i>		
		1 to 4	5 to 12	over 12
Long singer	% of total number of periods	2	78	20
	% of number after stanzas or more than 10 secs.	9	83	9
Normal singer	% of total number of periods	4	78	18

JOHN H. BARRETT.

FIELDFARES IN ESSEX IN LATE JUNE.

ON June 29th, 1947, three adult Fieldfares (*Turdus pilaris*) spent the morning feeding on a grass bank in my garden about 3 miles from Dunmow, Essex. I have been familiar with Fieldfares since my boyhood, but I also took the precaution of having before me both *The Handbook* and Kirkman and Jourdain's *British Birds* while watching them at 20-30 yards range with the new Kershaw (10.5 × 40) binoculars. It was thus possible to make an exact comparison of the plumage with the descriptions and plates in these works. My wife also observed them through the binoculars and independently confirmed the plumage description as I read it out to her. The following main points were expressly noted:—slate-grey head, nape and rump, contrasted with chestnut back and blackish tail; lores black; distinct curved black stripe from eye to breast in two of the birds, less distinct in the third; throat and upper-breast buff, lower breast and belly white, with striations on breast and flanks.

My wife states that Fieldfares fed here regularly with other birds during the cold spring and these birds appear to have remained. We were not able to look for them again until July 31st, when they were not to be seen.

J. R. KENNEDY.

IVY SEEDS IN NEST OF SONG-THRUSH.

ON May 4th, 1947, I examined the nest of a pair of Song-Thrushes (*Turdus e. ericetorum*) from which four young had just flown and found on the floor of the cup a large pile of ivy berry seeds, not less than fifty in number.

Ivy berries had obviously been fed to the nestlings and I concluded that they had disgorged the undigested seeds somewhat in the manner of owls and hawks, though not in pellet form. It seemed hardly likely that they had been evacuated, as they would have been in the sacs which the parents would swallow or remove complete. In no nest previously examined have I found the remains of any food.

The experiences and views of other observers would be of interest. Incidentally, the berries of ivy are not specifically mentioned in the Food Section of *The Handbook* for Song-Thrush, though they are for Mistle-Thrush and Blackbird. B. H. RYVES.

MIMICRY OF CURLEW CALL BY RING-OUZEL.

ON May 18th, 1940, in Withens Clough, near Mytholmroyd, Yorkshire, I was watching a Ring-Ouzel (*Turdus t. torquatus*) singing from the top of a sycamore tree. The typical song was twice broken by an excellent rendering of the bubbling cry of the Curlew (*Numenius a. arquata*). I was watching the bird through my glasses at the time. The Curlew is quite numerous on the adjoining moorland.

The Handbook does not mention mimicry by this species.

EDWARD W. WATSON.

RING-OUZEL NESTING IN TREE.

ON May 16th, 1947, I found a nest of a Ring-Ouzel (*Turdus t. torquatus*) built 10 feet up in a Scots pine tree near Tummel Bridge, Perthshire. The tree was in a pine plantation, averaging about 30 feet in height, situated on a rather steep hillside at about 1,250 feet, and surrounded by moorland on which some Ring-Ouzels always breed.

On May 30th I saw the female at the nest, in which 3 young had hatched on May 27th, and on June 4th, 5th and 6th I had good views of both male and female at the nest from close range. There can be no doubt that the birds were Ring-Ouzels, as the markings were seen on both sexes. The young fledged on June 6th, giving a fledging period of 10 days. FINLAY MCINTOSH.

[We know of no other case of this form nesting in trees, though the Alpine subspecies, *T. t. alpestris*, does so habitually.—EDS.]

BEE-EATER IN CO. WEXFORD.

ON May 29th, 1947, one mile south of Duncormick, at the sea-wall of the Cull, Co. Wexford, we saw a Bee-eater (*Merops apiaster*) flying W.N.W. calling "clu-ep. . . clu-ep" repeatedly as it passed us at a distance of about 20 feet.

As the bird passed between us and the sun, details of colour were not distinguished, but we got a brief impression of green-blue and old gold. The longish curved bill, scimitar-like wings and elongated central tail-feathers of the species were unmistakable. The flight was straight in direction, but rising and falling over long distances.

We are familiar with the Bee-eater from experience in the Middle East and one of us (R.E.P.) has since observed the species again on a visit to South Africa. There appear to be nine previous records for Ireland.

J. L. OTTER AND R. E. POCHIN.

GREEN WOODPECKER DRUMMING.

As actual drumming of the Green Woodpecker (*Picus viridis pluvius*) is seldom recorded the following may be of interest. On April 11th, 1946, near Pease Pottage, Sussex, Mr. R. M. Jones and I watched one of these birds upon a tree close by. It was making the loud tapping which is quite often heard in this species and suddenly it gave two short bursts of true drumming, much like that of a Great Spotted Woodpecker (*Dryobates major anglicus*), though possibly stronger, before continuing with its tapping. It repeated this performance twice more before flying off. I. J. FERGUSON LEES.

[For other cases see *antea*, Vols. xxxvi, pp. 37-39 and xxxviii, p. 76.]

WING-DRUMMING OF HOBBY.

ALTHOUGH I have studied Surrey Hobbies (*Falco s. subbuteo*) for over fourteen years, it was not until last summer that I became aware of wing-drumming on the part of this species. Strangely enough, within a comparatively short time, two instances came under my notice, and as the trait is not alluded to in *The Handbook*, the following notes may prove of interest.

On August 9th, 1947, in Surrey, I was on a hill-ridge at a distance of about a mile from a known breeding pair when I noticed a Hobby circling above the tree-tops close to where I was standing. For some seconds I watched it with glasses, and, on glancing to my left, saw another plunging earthward in what appeared to be a form of corkscrew dive. It levelled out well below 70 feet, and was temporarily obscured by trees, but for a second or two, just prior to its coming into view again as it swept upward, I heard a brief but distinct drumming sound of a somewhat similar timbre to that produced by the Common Snipe (*Capella g. gallinago*). Shortly afterwards I watched the pair circling together and taking high-flying insects, but eventually they moved away.

The second occasion, when a near and uninterrupted view was obtained, was on September 6th, 1947, in the vicinity of the nest, which contained two young belonging to the above mentioned breeding pair. Both parents were circling quite low ahead of me when a third Hobby suddenly swept down in a fast dive into their midst. It levelled out at a height of below 50 feet, and described a smooth ascending curve away from me, with wings fully spread, and, as it did so, a brief but very distinct drumming sound ensued. Tentatively I am inclined to ascribe it to a controllable form of wing-feather flutter or vibration in the region of the secondaries. Be this as it may, I well remember on one occasion in Wales when examining a Common Buzzard's (*Buteo b. buteo*) eyrie containing

young, the stooping female came close enough for me to discern a perceptible shuddering or trembling along the trailing edge of her pinions as she "pulled out" of one of her steep dives, though the only sound occasioned thereby was a pronounced sougling.

HUBERT E. POUNDS.

GLOUCESTERSHIRE RECORD OF SQUACCO HERON CONFIRMED.

IN W. D. Mellersh's *Treatise on the Birds of Gloucestershire*, a Gloucestershire example of the Squacco Heron (*Ardeola ralloides*) is recorded as follows: "One shot August 1867 by Lord Ducie, New Grounds Sev. [Severn] near Berkeley." This record was not, I am informed, one of the seventy odd occurrences admitted by Mr. Witherby in *The Handbook of British Birds*, presumably because no evidence was given.

This bird is in fact preserved in the Public Museum at Gloucester, to which it was presented by Lord Ducie in 1911, and correspondence preserved in the museum records makes it quite certain that it is the specimen in question. A letter of enquiry from A. G. Thacker, of the Museum, dated January 20th, 1914, is endorsed by Mellersh (he seems always to have replied in this way, as a matter of course): "It is the actual specimen, but Lord Ducie corrected me afterwards as to who shot it. He was present at a shoot when the keeper or someone shot it and gave it to him." The bird is an adult, far advanced in the autumn moult.

CHARLES GREEN.

GARGANEY IN SUSSEX IN WINTER.

ON January 19th, 1947, I had good views of a pair of Garganey (*Anas querquedula*) on Hawkins Pond, near Horsham, Sussex, both in flight and on the water. The broad, long white eye-stripe of the drake was clearly noted, as was also the pale blue forewing and the sharp demarcation between the dark brown breast and the lighter flanks and pure white belly. The birds were seen close enough on the water to pick out the curved scapulars in the male and the very small green speculum and slight superciliary line in the female.

Both birds called, the female using twice or three times a teal-like "quack" and the drake Garganey uttering a similar note several times in succession rather quickly, so as faintly to recall its spring note. This winter call does not seem to be recorded in *The Handbook*.

This would appear to be the third winter record of this species in Sussex, although earlier than either of the others.

I. J. FERGUSON LEES.

BREEDING OF GARGANEY IN LEICESTERSHIRE OR RUTLAND.

DURING 1947, the first breeding record of Garganey (*Anas querquedula*) for Leicestershire or Rutland has been recorded at Eye

Brook Reservoir, through which the boundary of the two counties runs. A pair were first reported on May 3rd by Mr. J. M. McMeeking, of the Uppingham School Field Club, and were subsequently seen by several observers until May 18th. On June 15th Mr. J. M. McMeeking reported a female with 9 young and these were seen by myself on June 21st, by which time the brood had been reduced to 8 young. As the nest was not found, it was impossible to determine in which of the two counties breeding had taken place.

F. A. BAK.

COMMON EIDER IN THE ADRIATIC.

ON May 29th, 1947, whilst sailing about one mile offshore in Sistiana Bay between Trieste and Grado I saw one male and two female Eiders (*Somateria mollissima*) resting on the sea; they were very wild and would not allow a close approach, but I managed to obtain good views of them with x 12 binoculars and there could have been no doubt of the identification. After a few minutes they took fright and flew off in the direction of the Istrian coast; later in the evening the same party (presumed) was seen to fly in from the open sea towards the cliffs around Sistiana.

A. R. LONGHURST.

[The Eider is a decidedly rare straggler in the Adriatic. Arrigoni (*Ornitologia Italiana*, 1929) mentions some fifteen occurrences on or near the Adriatic coast of Italy, but adds that the species occasionally occurs on the open sea near Venice. All the Italian occurrences referred to by Arrigoni were between September and April and a date in late May must be most exceptional.—EDS.]

OCCURRENCES OF TEMMINCK'S STINT IN NORTH KENT.

IN the years 1935, 1937, 1938, 1939 and 1946, I paid a number of visits in spring and autumn to a certain area of marshland at the mouth of the Thames. Each year I was fortunate enough to observe one or more Temminck's Stints, the occurrences being as follows:—1935: August 4th, one immature. 1937: May 16th, three, one in winter plumage, one in partial summer plumage and one in summer plumage; May 30th, one in summer plumage. 1938: August 7th, eight in various stages of plumage, several being in worn summer plumage, observed by R. B. Sibson and the recorder. 1939: May 17th and 18th, four, two in summer plumage and two in transition; May 19th and 20th, three, two in summer plumage; May 27th and 28th, three in summer plumage; May 29th, four in summer plumage, observed by G. D. Elcombe and the recorder; probably four birds really present throughout. 1946: August 31st, one in transitional plumage, observed by G. E. Manser and the recorder.

Except on two occasions all the above birds were seen along the edge of marsh fleets a little way inland, where they were to be found at both high and low water. On most occasions they were very tame, allowing one to approach within a few yards. Although the birds were in all stages of plumage the following points were noted

on all occasions:—white outer tail-feathers contrasted with the dark central ones; a distinct bib like a Common Sandpiper, contrasted with white under-parts; dark markings on the wing-coverts and mantle; greenish-grey legs; call a distinct spluttering trill “pt-r-r-r-r-r” or “tir-r-r-r-r-it.”

E. H. GILLHAM.

TEMMINCK'S STINT IN SUSSEX.

ON August 24th, 1947, Messrs. F. M. Gurteen and C. W. G. Paulson found a Temminck's Stint (*Calidris temminckii*) in a gravel-pit near Chichester, Sussex. On August 29th I found this very small wader, but was unable to get nearer than about twenty yards from it, owing to the softness of the ground. I had a clear view of the very grey uniform colouring on its upper-parts and the very deep greyish tinge to the breast. I could only see the tops of its legs, but they appeared to be greenish-brown. After some minutes I flushed it and it towered, uttering the high-pitched trill which I know well. The white outer tail-feathers were also very noticeable. Three days later it could not be found.

I. J. FERGUSON LEES.

YELLOWSHANK IN SUSSEX.

ON August 15th, 1947, we found a Yellowshank (*Tringa flavipes*) on a gravel-pit near Chichester, Sussex, five miles from the nearest coast.

Our attention was first drawn to the bird by a very excited double “tewk” of the same type as a Greenshank's (*Tringa nebularia*) but on rather a higher note and not altogether so forceful. The bird was flushed and seemed disinclined to pitch again, but did so for a short while, calling the double note excitedly all the time. The following points were particularly noted at the time. Bill dark, slender and about the same length as that of a Redshank (*Tringa totanus*). Legs and feet of deep yellow hue, much more intensely coloured than those of an immature Redshank; long and slender and possibly just projecting beyond the tail. Sides of face lightish with darker streaks; fairly prominent eye-stripe. Wings uniformly dark; in flight appearing unrelieved by any paler shade. Back and upper rump dark, but much spotted by lighter markings, which reminded us of the back of a Wood-Sandpiper (*Tringa glareola*). Lower rump and tail appeared almost pure white, but with a slight greyish tinge. Under-parts pure white. In flight it had very much the “cut” of a Spotted Redshank (*Tringa erythropus*), but with the differences remarked above.

This would appear to be the third recorded Yellowshank in Sussex.

I. J. FERGUSON LEES AND J. A. SMITH.

MARSH-SANDPIPERS IN SUFFOLK.

ON May 5th and 6th, 1947, I observed three Marsh-Sandpipers (*Tringa stagnatilis*) near Southwold, Suffolk. They were on flooded

marshland close to the coast, with shallow, brackish water and large areas of bare mud exposed between patches of low vegetation—*Aster tripolium*, etc. Very marked passage movements were going on at the time and many waders were present, including Greenshank (*T. nebularia*), Redshank (*T. totanus*), Spotted Redshank (*T. erythropus*), Green Sandpiper (*T. ochropus*) and Common Sandpiper (*Actitis hypoleucos*), and it was possible to compare the Marsh-Sandpipers very closely and conveniently with these other species. Redshank, Greenshank and Marsh-Sandpiper were actually watched on the same bit of mud together. They were markedly smaller than Greenshank and Spotted Redshank, but appeared only slightly smaller than common Redshank, although they were more slightly built and more active. The bill, which was very thin, appeared proportionately longer than either Greenshank's or Redshank's, but not so long as Spotted Redshank's. The same applies to the slender dark legs. The colouring of head, neck and mantle was noticeably pale—I recorded it as "winter-Sanderling grey with buff lights" that of the wings and lower scapulars was darker and mottled with dark brown. The rump and upper-part of tail were white, giving a pattern almost identical with that of a Greenshank in flight. In two of the three birds there was a dark mark between the eye and the base of the bill. All the actions were particularly graceful and nervous. No call-note was heard. One or possibly two of the birds were evidently also seen, under less favourable conditions, on the 4th, but were then taken for unusually pale Greenshanks in winter plumage. By the 7th they had gone

E. A. R. ENNION.

DOTTEREL IN DERBYSHIRE.

ON April 18th, 1946, I saw two Dotterel (*Eudromias morinellus*) at Alport Stone, near Wirksworth, Derbyshire.

One bird was in summer plumage, having a very dark cap, white eye-stripe meeting in a V behind the head and upper-parts which might be described as of approximately a pigeon-grey colour. The grey colouring extended round to the breast, below which was a white semi-circle, followed by chestnut, shading to dark brown behind where this colouring bordered the under tail-coverts, which were white. The second bird was still in predominantly winter plumage. It had a very pale buff eye-stripe, buffish-brown upper-parts, buffish under-parts and white under tail-coverts.

Both birds were exceedingly tame, allowing approach to within 5½ yards. They were resting on a ploughed field and had gone the following day.

PETER E. MERRIN.

CLUTCH-SIZE OF OYSTER-CATCHER.

MR. Bruce Campbell (*antea*, Vol. xl, p. 126) gives details of clutch size of sixty-five nests of Oyster-catcher (*Hæmatopus ostralegus*) found at Ardnamurchan between 1921 and 1929. I give details of one hundred and sixty-five nests found on the Solway Marshes,

Cumberland, between 1925 and 1946. They are not guaranteed to be full clutches and many are second or third layings.

No. of eggs in nest					Total nests
	4	3	2	1	
Holland ...	7 (10%)	42 (60%)	19 (27%)	2 (3%)	70
Ardnamur- chan ...	3 (5%)	30 (46%)	28 (43%)	4 (6%)	65
Solway Marshes	4 (3%)	81 (49%)	60 (36%)	20 (12%)	165
<i>Average clutch size.</i>			<i>All nests</i>	<i>Clutch 1 ignored</i>	
Holland ...	...	...	2.77	2.83	
Ardnamurchan...	...	...	2.49	2.59	
Solway Marshes	...	...	2.42	2.59	

R. H. BROWN.

ARBOREAL NESTING OF BLACK-HEADED GULL COLONY.

DURING the Fenland floods of March-June, 1947, large numbers of Black-headed Gulls (*Larus r. ridibundus*) were present on and around flooded agricultural land, and many attempted to breed as the water receded and dry ground appeared. Incipient nesting colonies were found in late May and early June both in the Earith-Haddenham area (Cambridgeshire) and in the fens west of Lakenheath (W. Suffolk), in both of which areas several square miles of land were not finally pumped dry until early July. Most of these colonies were small, with from 10 to 50 nests, and situated on the slightly raised banks of the dykes—the first ground to appear above the water—but the largest colony found, containing some 350 nests, was situated almost entirely in a plantation of young spruce trees on flooded land. The nests were well-built platforms of sedge and straw in the forks or on the crowns of the young trees, from just above water-level to about 8 feet up, and there were up to 3 nests in a tree. Apparently they had been built just above successive water-levels as the trees became uncovered, since in general the highest-placed nests contained eggs advanced in incubation, or even chicks, at the time (June 11th), while the lowest contained fresh eggs. Clutches were normal, varying from 1 to 4 but chiefly of 3. Chicks were seen to drop into the water and swim away actively, attended by the parents. The oldest chicks were about a week old, so that nesting must have commenced about the beginning of May.

A small proportion of nests in this colony were situated on the banks of dykes, as were all those of other colonies.

After this date the water-level had fallen sufficiently for the nests to become accessible dry-shod, so that many were robbed, and few young could have been reared.

According to *The Handbook* the Black-headed Gull occasionally nests in trees, and there are a few references to isolated pairs doing so, in *British Birds*, but instances of a whole colony using such sites

must be rare. The conditions in this case were of course somewhat exceptional.

A. E. VINE AND D. E. SERGEANT.

SCANDINAVIAN LESSER BLACK-BACKED GULL IN SCOTTISH WATERS.

ON the morning of April 1st, 1947, I was aboard M.V. Sacramento travelling southward in clear calm sunshine on a course from Duncansby Head to a point six miles east of Rattray Head. About the ship was a large flock of Herring-Gulls (*Larus argentatus*) among which were present one Great Black-backed Gull (*L. marinus*) and several (at one time as many as eight) adult Lesser Black-backed Gulls (*L. fuscus*), all of which, being fully as dark of back as was the larger species, and there being no difference perceptible between the black of their mantles and the black of the tips of their primaries, were clearly of the Scandinavian race (*L. f. fuscus*). Their vividly yellow legs and small size dispelled any possibility of their being Great Black-backed Gulls.

This observation seems worth recording since Baxter and Rintoul (*Geographical Distribution and Status of Birds in Scotland, 1928*) give no record of this race for the coastal counties in this area. The *Handbook* mentions occurrences in the Orkneys and in Aberdeenshire and Watson (*antea*, Vol. xl, p. 127) has recently recorded further occurrences on land in Aberdeenshire and occurrences also in Banffshire.

Besides these gulls there were also constantly present immature Glaucous Gulls (*L. hyperboreus*), usually one bird, but at times as many as three. As the ship approached Rattray Head the Glaucous Gulls and the Scandinavian Lesser Black-backed Gulls disappeared astern and birds of the British race of the Lesser Black-backed Gull (*L. f. grællsii*) appeared, the markedly paler mantles of which, seen under similar conditions on the same day, served to confirm the earlier identification.

N. W. CUSA.

IVORY GULL IN KENT.

ON April 27th, 1947, we saw an adult Ivory Gull (*Pagophila eburnea*) near Cheyne Court, Walland Marsh, Kent. It was first seen flying rapidly, with tern-like flight. It came directly over us with several Black-headed Gulls (*Larus r. ridibundus*) and it was of course its pure white plumage which took our attention. The impression we got was of some red or orange on the bill and Cawkell definitely noted the legs as black.

A little later Brooker watched the bird at rest on a fleet near by. Seen through 8x binoculars and a 35x telescope the following points were noted. It was with Black-headed Gulls and in comparison appeared a more robust bird, with thicker neck—in fact the head and neck were the shape of a Common Gull's, rather than a Black-headed's. It also appeared slightly larger than the latter. Owing to the unsuitable background it was impossible to record a precise description of the bill, but there was some orange or red on it.

B. T. BROOKER, H. A. R. CAWKELL AND N. W. ORR.

POMATORHINE SKUA IN CO. WEXFORD.

ON May 24th, 1947, at Forlorn Point, Co. Wexford, I saw a dark coloured bird flying low against a strong wind in company with some Kittiwakes (*Rissa tridactyla*). My first impression from a head-on view was of the curlew-like flight. When the bird passed by at a distance of about 25 yards, I had a good view of it through 6 x 21 binoculars. The twist in the central tail-feathers, which were about three inches longer than the others, immediately identified the bird as a Pomatorhine Skua (*Stercorarius pomarinus*). The colour of the bird was a uniform dark brown all over. F. W. Fox.

MERLIN PREYING ON ROBIN.—Mr. C. P. Rawcliffe sends us particulars of a male Merlin (*Falco columbarius aesalon*) seen near North Stack, Holyhead, Anglesey, on May 17th, 1947, with a Robin (*Erithacus rubecula melophilus*) in its talons, which was transferred to the female. The Robin is not included in the list of prey given in *The Handbook*.

SOARING FLIGHT OF SPARROW-HAWK.—Mr. W. Baggaley informs us that on March 2nd, 1947, at Pinner, Middlesex, he watched a soaring Sparrow-Hawk (*Accipiter n. nisus*) and noticed two distinct actions, the actual soaring in comparatively small circles and an upward climb, from one series of circles to the next, at an angle of about sixty degrees. He happened to be on high ground, and, as the bird rose to eye-level, this steep ascent by three or four wing-beats was a most noticeable feature to gain height by flying upwards before the next spell of soaring commenced.

Although it is known to him, Mr. H. E. Pounds, whose valuable "Notes on the flight of the Sparrow-Hawk" (*antea*, Vol. xxx, pp. 183-9) will be known to a number of our readers, considers this "stepping-up" action to be a variation of the hawk's normal method and states that a somewhat similar phase is occasionally witnessed during a soaring and extended form of "prospecting flight" when advantage is often taken of a moderate to fresh breeze to assist the spiral ascent. He also remarks that it would be useful to have further careful observations on the point, particularly from those who may have opportunities of viewing soaring Sparrow-Hawks as they rise to eye-level.

SHELD-DUCK BREEDING IN CAMBRIDGESHIRE.—Mr. P. E. Parry informs us that on June 13th, 1947, he found a pair of Sheld-Duck (*Tadorna tadorna*) with a brood of about ten ducklings a week to ten days old on a half-flooded field in Cambridgeshire some two miles from the Huntingdonshire border, near Earith. Having regard to the age of the ducklings and the fact that suitable nesting sites were available close at hand on ground which had not been inundated, it seems beyond reasonable doubt that the young were in fact hatched in approximately the place where they were seen and thus definitely in Cambridgeshire. This is apparently the first recorded breeding in the county. The locality is over 30 miles inland from the coast of the Wash.

NOTICE TO CONTRIBUTORS.

British Birds accepts papers and notes dealing with original observations on the birds of the British Isles and Western Europe or, where appropriate, on birds of this area as observed in other parts of their range. Review articles on subjects of current ornithological interest will also be considered.

Contributors are asked to observe the following points, attention to which saves the waste of much editorial time on trivial alterations.

MSS. if not typed should be clearly written. Authors of papers, especially those containing systematic lists, lists of references, tables, etc., should consult previous papers on similar lines in *British Birds* as a guide to general presentation and set-out, including use of particular type, stops, and other conventions, such as date following the month (January 1st, etc., not 1st January), names of books and journals in italics, not inverted commas, and so on. Capital initial letters are to be used for proper names of definite species, but not for names used in a general sense or covering more than one species: thus "Great Tit," but "flocks of tits." [In systematic lists the whole name should be in capitals]. The scientific name (underlined in MS. to indicate italics) follows the English name in brackets without any intervening stop. Scientific nomenclature follows *The Handbook of British Birds* or H. F. Witherby's *Check-List of British Birds* based on this. When the subspecific name (if this is used) repeats the specific name the initial letter only should be used for the latter; otherwise the whole name should be given in full: thus "*Parus m. major*," but "*Parus major newtoni*."

Notes should be drawn up in as nearly as possible the exact form in which they will be printed, with signature in BLOCK CAPITALS, and the writer's address clearly written on the same sheet. If more than one note is submitted each should be on a separate sheet with signature and address repeated. Though suitable headings and scientific names can be added by the Editor, if necessary, they should be inserted by authors as far as possible. Communications should always be as concise as possible, though reasonable detail can be given where this is important. Notes or records of subsidiary importance may be abbreviated or otherwise modified by the Editor for inclusion in the section of "Short Notes." Maps or graphs must be neatly and boldly drawn in Indian ink, with due allowance for reduction when necessary.

Photographs are accepted primarily as illustrations of papers or notes, but good prints of species rarely or not previously photographed or illustrating important points of habits, behaviour or field characters will also be considered on their own merits.

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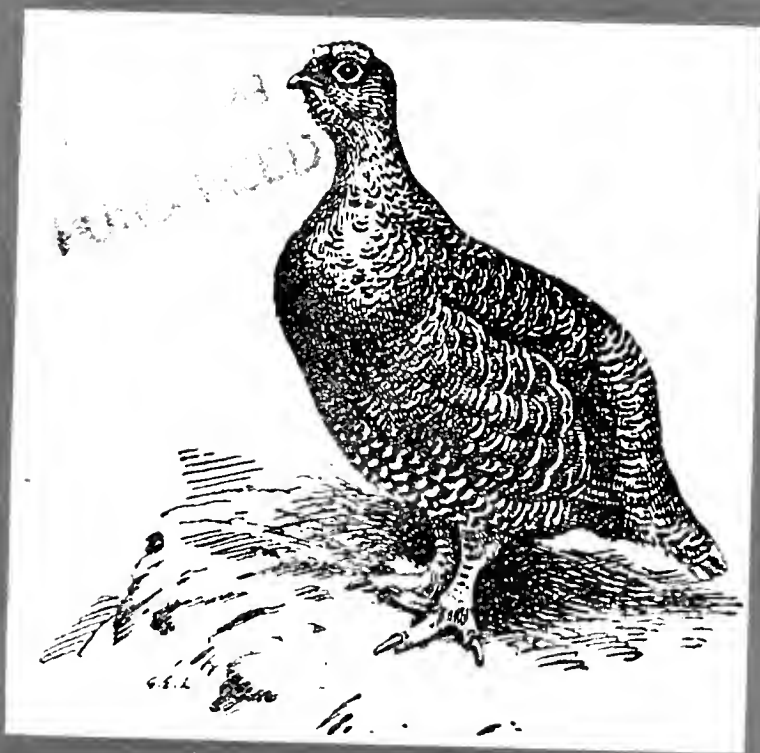
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SOME NOTES ON THE CRESTED LARK

BY

JOHN H. BARRETT, P. J. CONDER AND A. J. B. THOMPSON.

FROM the summer of 1940 until May 1945 we were in various prison camps scattered over Germany and Poland. For most of the time two of us were together. In 1946 one of us was for a short time again in Germany. Crested Larks (*Galerida c. cristata*) were seen wherever we stayed and often bred within a hundred yards of us, but always outside the wire. So in each succeeding year we were able to see but little of their breeding behaviour. Add to this repeated disappointment the necessity for carrying food and not mountainous piles of bird notes when we were set marching in the last winter and it will be understood why so few written notes survive. From them and from those written in a more sympathetic atmosphere in the early summer of 1946 we have compiled the following paragraphs.

CALLS.

The commonest call is one we christened "God save the Queen." This is written by Niethammer (1937) as "tritrithrieh" and in *The Handbook* (1938) "whee-whee-wheoo." The third note is relatively unaccented and the fourth higher pitched than the others, though trailing away slightly. The notes have an undefinable sibilant quality which none of the three representations suggests. The rhythm of the call is exactly represented by the words we use. Variations are common, particularly the omission of the first note.

The call is heard throughout the year but least of all in winter, with peak periods from March to May and from August to October. During the spring peak there is much chasing, and neighbouring males seem to use the phrase in calling contests to advertise the possession of territory. At other times there appears to be no challenge connotation. Parties when feeding often use the call to an extent proportional to their dispersal. The calls from an individual may lead to a sustained loud chorus by the party. Two birds that were feeding side by side and have become separated often give call for call.

The quality of the calls varies. When sex-chasing or chasing intruders or food rivals the notes are very shrill and loud; but when a few birds are feeding together the calls are soft and sweet. When one calls excitedly the calls of all react similarly. After an alarm the alarm calls are succeeded by "God save the Queen," shrill at first but gradually softening to silence. When calling this note shrilly on the ground the bird is alert, standing erect with crest fully raised; but when the softer version intervenes the body feathers are more puffed out as the bird relaxes.

The normal alarm call is a soft pure-toned whistle, best written "hooeee." To the human ear there is nothing to suggest haste or anxiety. It is a slow long note increasing in pitch at the end. It is usually delivered from the ground, the bird crouching low with

depressed crest, which is nearly always the attitude before the bird flies. Individuals and parties use the call throughout the year, but in August it becomes markedly common.

A third call was "seeee eep," well imitated by whistling softly through the teeth to attract attention. It is shrill and confined to those brief periods when juveniles are first roaming in parties away from the nest. We thought that this may be a purely juvenile note and that the increase in "hooees" in August represents a variation of "seeee eep" by the young birds and that both combined to develop into "God save the Queen."

Another distinct call is "seeoo." This is also a shrill whistle and is heard only in March and the first half of April when chasing is at a maximum. It was noisiest and shrillest when several birds were excitedly skirmishing on the ground or in the air.

Lastly, we separated a strange "chirrup" call which defies description. It may be the "single guinea-pig-like note" mentioned by Alexander (1927) and quoted in *The Handbook*. We thought it was bisyllabic. It is loud and very forced and has a certain sparrow-like quality. Heard only in March and only in the early morning it seemed to imply challenge, two birds often shrieking this note against one another.

SONG.

Fig. 1 is a song chart using the same notation as in *The Handbook* and including Alexander's Central Italy findings for comparison.

Figure 1.

Jan.	Feb.	Mar.	Apr.	May.	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
---	---	---	---	---	---	---		---	---		
..	..	---	---	---	---	---	---	---	---	...	

Unbroken line—regular song. Dashes—irregular but fairly frequent song. Dots—exceptional song or sub-song.

The song can be divided into two types, full loud song and soft song.

Soft song, which may be sub-song, was heard only on the ground or a perch. The beak was closed, a point frequently checked throughout the season. It consisted of a string of alarm-type "hooeee" calls, which sometimes resembled a Woodlark's (*Lullula a. arborea*) calls, with variations of the "God save the Queen" phrase, intermingled with series of trills like a Linnet (*Carduelis c. cannabina*) and very typical lark "chirruées," sometimes grating and sometimes sweet. This rambling soft song continued for long periods while the birds were feeding, and ceased only for an instant when they pecked. On sunny winter days a bird would sing like this on the leeward side of a fence or when perched against warm chimney bricks. The amount of song increased in March and then seemed to be a tuning-up for full song. In late March, when bad weather lessened loud song, there was a reversion to soft song.

When full song was at a maximum soft song was fragmentary. During September and October soft song was heard relatively less frequently than in spring.

Full and loud song either on the wing or on the ground is in some respects intermediate between Skylark's (*Alauda a. arvensis*) and Woodlark's. It has not the vehemence of the former's and is not so continuous, but it is more coherent than the latter's, though not so mellow. It is silvery in quality. The constituent parts are short trills almost exactly like a Woodlark's, phrases like a typical Skylark's, a few odd twittering notes and softened "God save the Queen" calls. The parts are run together, mixed up and come flowing out in a way not inferior to most Skylarks. Though other observers would not agree we think the effect is no more and no less monotonous than a Skylark and very, very little inferior.

Loud song from the ground or from a perch was identical to loud song on the wing and was usually a prelude to it. It was commonest early in the season when song on the wing became regular. *The Handbook* states that it sings "frequently on the ground,—less commonly on the wing" and "has no soaring song-flight like a Skylark." An inference from the quotations that there is no sustained song while on the wing would be wrong. From 1940 to 1946 we heard them in many camps widely distributed in Germany and Poland. Everywhere song-flight was common, though no evidence written at the time is available except for 1944 from Lower Silesia. Figure 2 shows the number of days in 1944 on which the varieties of song were heard. Since the majority of observers appear to agree that non-aerial song is more regular than song in the air, it is possible that there is some local variation in this respect. Of course, more than one kind of song may be heard on one day.

Full and loud song on the wing is usually at about one hundred to two hundred feet. The height of a single bout of song remains more or less constant. As a rule the birds do not circle up but climb directly and usually silently. The wing movement when singing is slower than a Skylark's, more of a shuffle than vibration. The bird circles slowly over a small area, frequently hovering into wind, singing all the while. At the end of its performance the Crested Lark ceases singing and dives steeply downwards with half closed wings and silently, though singing may be at once resumed from the ground. The Skylark, as is well known, sings while climbing up and during the descent, still singing, it parachutes downwards on stiff quivering wings, and dives steeply only for the last twenty to fifty feet.

Crested Larks imitate other songs and calls. Probably those short passages in its song which are indistinguishable from parts of the song of the Skylark and Linnet are not imitations. They are so common and the emphasis so subtly shaded that we thought of them as variations on a theme. Imitations commonly heard were

FIGURE 2.

		No. of days on which were heard			
Soft song		Loud song on the ground.	Loud song in air	nothing but loud song in air.	
Jan.		1			
Feb.	...	11		1	
March	...	23	10	14	
April	...	6	15	24	3
May	...	10	9	25	9
June	...	1		17	16
July	...	1	4	13	10
August	...		5		
Sept.	...	3	3	12	7
Oct.	...	8	5	21	10
Nov.	...	2	1		
Dec.	...	2			
Totals	...	68	52	117	55

the normal "chissic" call and the "chi-chirrichirrichissick" song of the White Wagtail (*Motacilla a. alba*); the chattering of song from a flock of Tree-Sparrows (*Passer m. montanus*) and, at another place, of House-Sparrows (*Passer d. domesticus*). Also we heard the song of the Black Redstart (*Phœnicurus ochrurus gibraltariensis*), eight days before that species arrived in the area; the call of a Partridge (*Perdix p. perdix*); the song of a Siskin (*Carduelis spinus*); Great Tit (*Parus m. major*), and Common Whitethroat (*Sylvia c. communis*). These imitations were in full song either in the air or on the ground. "Belling" of a Greenfinch (*Chloris ch. chloris*) and the "p'tchoo" call of a Marsh-Tit (*Parus palustris*) were heard several times during soft song.

DISPLAY AND COURTSHIP.

We have said why we saw so little of breeding behaviour, but the following patterns do not seem to have been described elsewhere.

With crest fully raised and tail held at forty-five degrees upwards, head settled back on its shoulders, all body feathers puffed out and wings depressed with one half open and the other extended its full length towards the female, the male, singing loudly, danced round and round the female with light buoyant hops. When he turned round the wing attitudes were reversed, thus continuing to show off the plumage pattern. The female crouched silently, but showed no other reaction.

Another kind of display was seen but once, in early autumn. It has something in common with the attack attitude described by Hartley (1946). The male sang full loud song on the ground. His wings were half open and held away from his sides, drooping towards the tips and vibrating very fast. The tail was held upwards at forty-five degrees and the crest was fully erect. He ran

to the edge of a small hole where the second bird was and showed off his pale flanks by a sideways shuffling back and forwards for thirty seconds. When the second moved away the male flew to a roof and continued to sing loudly with back and rump feathers ruffled up.

In the early days of courtship there was another pattern reminiscent of a game of hide-and-peek. The female flies away from the male and drops behind a heap of stones, there crouching as if on a nest. The male stands in an erect posture with head held high, wings slightly raised and held away from the body. He apparently looks round for the female, calls loudly "chu chi chu" (the common variety of "God save the Queen" that omits the first note) and begins to wander "undecidedly." The female partly rises and walks up the stones, still maintaining a crouched attitude. But the male does not appear to see her, until suddenly he is all attention, and the—anti-climax—he either feeds or pretends to feed, and, losing the stiffness of his posture, flies away still calling. The female remains crouching and feeding.

Some very slender evidence suggests a ritual of nest-site selection. The male walks into low scrub, calling vigorously. He stops and slowly crouches and then, with tail spread and depressed, bows several times towards the female, who is a foot away outside the bushes. She may crouch and pick up a piece of grass, only to drop it. When the male comes out she may follow him into other bushes and the bowing is repeated.

A very common threat attitude was a crouched position with wings half spread and head thrust forward. The threatened bird frequently depresses its crest. This was particularly associated with feeding squabbles.

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REPORT ON THE INLAND PASSAGE OF ARCTIC AND COMMON TERNS IN THE SPRING OF 1947

BY

JOHN GIBB.

In the spring of 1947 there occurred an exceptional inland passage of Arctic (*Sterna macrura*) and Common Terns (*S. h. hirundo*) in England and Wales, concerning which a preliminary notice was published in June in *British Birds* (*antea*, Vol. xl, p. 189). The records of terns inland, for which information was especially requested, have been supplemented by others from several coastal areas, namely Hampshire, Dorset, Glamorgan, Carmarthen, Westmorland and Argyll. These show clearly that unusually large numbers of terns were by no means confined to inland localities. In particular, Messrs. G. C. S. Ingram and H. Morrey Salmon recall that the last comparable migration of terns observed in the Bristol Channel occurred in 1893, and previous to that in 1842. Mr. Bruce Campbell notes that the migration at Iona was unusually conspicuous and about three weeks in advance of the normal time. The early arrival of such large numbers was, in fact, one of the features of this migration. At many localities numbers fluctuated markedly from day to day, and even within a single day at Port Meadow, Oxon., Cambridge Sewage Farm and in Glamorganshire.

Common Terns have been brought within the scope of this report because the bulk of the terns reported were not specifically identified. Nevertheless it is apparent that Arctic Terns predominated very markedly, for of the 432 terns identified 374 or 87% were recorded as Arctic, and only 58 or 13% as Common. Where such numbers are involved it will be obvious that it has been impracticable to check every identification. But since the difficulty of distinguishing Arctic and Common Terns except under the most favourable conditions is generally recognized by field ornithologists it may reasonably be assumed that where birds are positively stated to have been one or the other species these conditions were fulfilled. Since some of the Arctic Terns had still blackish tips to their bills, not having yet assumed the full summer colouring, it is clear that any mistakes which may have been made would have arisen from confusing these birds with Common Terns, and hence the remarkable preponderance of Arctics has been if anything slightly under-estimated rather than the reverse.

We are grateful to the Director of the Meteorological Office at the Air Ministry for having supplied us with a full and invaluable account of the weather, and especially wind, conditions prevailing over the period of the migration. We can do no better than quote direct: ". . . the wind conditions over most of the British Isles during the earlier part of the migration period of the Arctic Tern were exceptional. After a brief quiet settled period from April 15th to 18th, when there were light variable or southerly winds, a long fetch, extending westwards beyond 40°W., of strong south-

westerly winds set in over the British Isles on April 19th. Extremely unsettled stormy and rather cold weather with strong winds and widespread gales occurred between the 20th and 25th. South-westerly gales were persistent from the 19th to the 23rd. Westerly winds prevailed until the 29th and then the wind gradually veered through north and east to south, reaching gale force from between NE. and SSE. on May 2nd and 3rd. The gales and high winds on the coasts during the third week of April, 1947, frequently penetrated inland. This was particularly the case on the 23rd. Gusts at many places exceeded 75 m.p.h., several 80 m.p.h., while the highest hourly wind speed at most places exceeded 45 m.p.h. At most places, both on the coast and inland, new records of the highest hourly wind speed and highest gusts were established for late April. The general precipitation of April expressed as a percentage was 142 over England and Wales and 213 over Scotland (the wettest April since 1869). Less than average rainfall fell over the Thames Estuary and on the Suffolk coast."

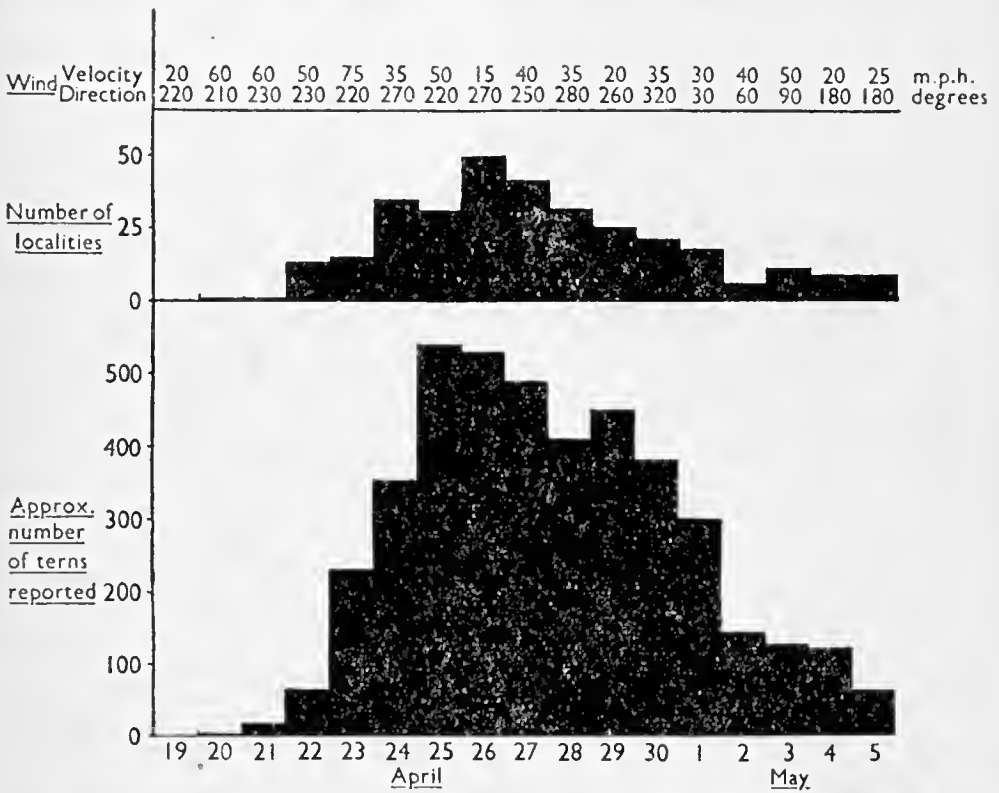


Diagram to compare mean wind velocity and direction over Southern Irish Sea, Bristol Channel and Mouth of English Channel with rise and fall in number of terns and localities at which they occurred from April 19th to May 5th, 1947.

Wind velocity in m.p.h. at about 1,500 ft. above M.S.L., and direction in degrees (East 90°, South 180°, West 270°, North 360°).

The extent to which the arrival of the terns inland coincided with the onset of the south-westerly gales is apparent from the diagram,

which includes the figures of daily wind direction and velocity, provided by the Air Ministry, and illustrates the number of terns reported for each day and the number of localities at which they occurred. In the opening period of light variable and southerly winds from April 15th to 19th there is only one record of a tern inland, an Arctic from near Cooden, Sussex, on April 17th (a very early date). On April 19th the mean velocity of the south-westerly wind over Southern Irish Sea, Bristol Channel and Mouth of English Channel rose during the day from 20 m.p.h. in the morning to 50 m.p.h. by the evening. The gale continued to rise in the following two days and reached 70 m.p.h. in the evening of April 21st. But numbers of terns inland remained small at first: a single bird, thought to be a Common, was recorded at Erlestoke Lake, near Devizes, Wiltshire, on April 20th, and a party of 14 appeared at Kenfig Pool close to the Glamorgan coast on April 21st. On April 22nd the winds slackened very slightly to 50 m.p.h., still well above gale force (40 m.p.h.), and terns were reported from twelve localities so widely scattered as Cambridge, Somerset, Carmarthen, Cheshire and Westmorland. These were the forerunners of the far larger numbers reported in the next few days. On April 23rd, the day on which the gale penetrated deepest inland, no less than 130 terns were reported on the Cheddar Reservoirs. April 24th was notable more on account of the increased number of localities where birds were seen than for the increase in terns themselves, appreciable though this was. Numbers of birds rose again on April 25th from 350 to 540 and at about the same number of localities as recorded for the previous day. The peak in numbers of terns reported was reached on Friday, April 25th, with *c.* 540 terns at about 32 localities. It is significant that although the number of localities rose sharply on Saturday, April 26th (as might be anticipated at a week-end) the total number of terns decreased slightly.

Generally speaking numbers were maintained until April 30th while the wind stayed in the west; but there was a rather rapid decline from May 1st and on subsequent days when the wind first veered from W. to NE., and then, from May 1st to 4th, from NE. to S. The final veering from E. to S. on May 3rd and 4th allowed a continued decrease, so that terns were reported only from 12 and 9 localities on Saturday, May 3rd, and Sunday, May 4th, respectively. Thenceforth, apart from 9 birds near Cheltenham on May 7th and 34 at Tring on May 8th, numbers remained small. Single stragglers were reported from May 9th to 13th, and one on May 17th.

It is probably significant that it has not been possible to trace any northward movement of terns from the dates and localities. This suggests that many birds were already well up into the Irish Sea, on what is likely to be their normal route, by April 19th, and that those occurring inland were wind-blown from the west rather than from the south. The counties from which the largest numbers were reported are Somerset and Glamorgan, astride the Bristol

Channel, and Worcestershire, Staffordshire, Cheshire and Lancashire; relatively small numbers were reported from anywhere along the south coast of England.

SOMERSET.—One Common Tern at Cheddar Reservoir, April 22nd; about 130 terns there on 23rd, remaining until May 2nd; only one left, May 3rd. One found dead on April 24th was a Common (*P. Channon per S. Lewis*). Apparently mostly Arctics on April 27th; of three picked up dead two were Arctic and one was Common. About 120 at Blagdon Reservoir, April 25th, and at least 100 there on 27th; of 14 identified 13 were Arctic and one Common. About 75 there on May 3rd and 63 on 4th (*R. E. Alley, H. J. Boyd, B. King*). Up to 12 at Barrow Gurney Reservoirs, April 26th, of which at least four were Arctic and four Common; seven there on 27th; of six on May 3rd at least three were Arctic (*R. E. Alley, G. E. Clothier, B. King*). One Arctic on Padgham Moor, April 26th (*D. B. Grubb*).

WILTSHIRE.—One probably a Common at Erlestoke Lake, near Devizes, on April 20th; one Common there, 27th (*B. W. H. Coulson*). A number at Oakhill, Froxfield, in week beginning April 20th. Eight on Wilton Water, April 27th (*J. K. Halliday*). Two at Corsham Lake, April 24th; a third arrived on 25th; still three on 27th of which one was Arctic and two Common; two again 28th-29th (*C. Rice, G. Spencer*). Three on floodwater near Tilshead, April 25th; one, 26th (*B. W. H. Coulson, Dr. Whitehead*). One Common Tern at Hillocks Reservoir, April 27th (*Ruth G. Barnes*). Two by the River Avon at Lacock, and one elsewhere on Avon, April 29th (*G. Spencer, Ruth G. Barnes*). Five at Coate Water, Swindon, April 30th, of which one was identified as an Arctic (*F. C. Bromley*).

DORSET.—One Common Tern near Milborne St. Andrew, April 25th (*W. B. Alexander*).

HAMPSHIRE.—Large numbers up the Avon Valley as far as Ringwood in second or third week of April (*C. Popham*).

SUSSEX.—One Arctic on a marsh near Cooden, April 17th (*T. R. Evans*). Three Arctics on River Adur, about three miles north of Shoreham, April 26th and at least two on 27th (*C. F. Brown*).

SURREY.—One at Frensham Ponds, April 22nd; nine Arctic and three Common, 23rd; two on 24th; seven Arctic and two Common, 26th; up to nine Arctic, 27th-31st (*D. Charlwood*). Of three at Earlswood Common on April 23rd one at least was Arctic (*R. C. Homes*). About 24 at Barn Elms Reservoir, April 29th, and at least 13 on 30th; 26 on May 1st. On April 29th five were identified as Arctic, and on 30th ten were Arctic; on May 1st there were at least two of each species (*R. H. Ryall, T. Bispham*).

HERTFORDSHIRE.—Four Common Terns at Wilstone Reservoir, Tring, on May 4th (*W. B. Alexander*); of 34 on the Tring Reservoirs on May 8th two were identified as Arctic and three as Common (*H. J. Evans*).

MIDDLESEX.—One Arctic at Brent Reservoir, April 24th, joined by a second bird not identified (*R. H. Ryall*); at least one of each species there on April 25th (*T. Bispham*). About 10 at Rickmansworth Reservoirs, April 26th-27th (*R. V. Lewis*). At least four Arctic Terns at Walthamstow Reservoirs, April 26th (*E. T. Nicholson*).

BERKSHIRE.—Thirteen believed Arctic at Ham Fields Sewage Farm, April 26th; one picked up by a keeper on that day or previous one was forwarded to B.W.T. and identification confirmed (*R. S. R. Fitter*); seventeen there, April 27th and 30th, at least six Arctic on first date (*D. J. May, J. O. Owens*); about twelve, May 2nd (*P. J. Campbell*). At Theale gravel-pit: several, April 24th (*B. T. Parsons*); about twelve, April 26th (*D. A. J. Williamson*); fourteen believed Arctic, April 27th (*J. E. Caffyn*); one, May 11th (*W. D. Campbell*). Two near Aldermarston, April 24th (*B. T. Parsons*). Two at Burghfield gravel-pit April 26th (*D.A.J.W.*), several observers later reporting three. Two over Kennet at Newbury, April 26th to 30th (*Miss D. M. White per S. N. Adams*). Three at Bearwood Lake, April 29th (*C. C. Balch*). One Virginia Water, April 28th (*D. J. May, J. O. Owens*).

OXFORDSHIRE.—On Port Meadow at Oxford a single tern was seen in the evening of April 22nd (E. H. Lousley) and varying numbers, up to nineteen on the evening of April 25th (G. E. S. Turner) and on 27th (W. H. Tucker), were reported by various observers throughout the remainder of April and the first days of May. The large majority if not all of these birds were Arctic, but one closely examined by Dr. F. K. Boston and E.H.L. on April 24th appeared to be Common. This bird was carefully looked for on subsequent occasions by E.H.L., but was not seen again, though one probable Common, was noted by G.E.S.T. on April 25th. Eleven birds examined at close range on the ground by B. W. Tucker on April 26th were all Arctics though some had dark tips to the bill, and eleven observed on the river-bank by W. B. Alexander on April 28th were also all definitely Arctic. These birds roosted on the river bank at Port Meadow and during the day some of them appear to have made flights up and down the Thames and in the vicinity. Thus one was seen on the neighbouring Seacourt Stream, April 28th and 29th (E.H.L., K. Price), two probable Arctics at Sandford, April 24th (B.M.A.C.) one ditto between Sandford and Kennington, April 26th (W.B.A.) and one flying over the N. Oxford by-pass, April 30th (J. Buxton). Also one at Sonning, April 27th (E. V. Watson) and three at gravel-pits there, April 28th (J. E. Caffyn). Two on April 27th and one on April 30th, May 2nd and 4th over the Windrush floods at Burford were considered to be Arctic on account of blood-red bills and grey breasts (R. S. R. Fitter).

The following were reported on the Thames where it forms the boundary between Oxfordshire and Berkshire: one between Wallingford and Moulsoford, April 22nd (J. C. Bretherton); one Caversham, April 26th (E. V. Watson); one, Henley, April 26th (G. Watts); four working upstream at Sonning (C. C. Balch) April 27th.

BUCKINGHAMSHIRE.—One at Wotton, April 25th, clearly identified as Common (J. Buxton). About twenty at Weston Turville Reservoir, April 26th (G. A. and L. Jones). Five at Olney, April 26th, two on 28th and 29th and three on 30th (E. G. Allen).

SUFFOLK.—Four at Livermore Park, near Bury St. Edmunds, end April (*per* A. E. Vine).

CAMBRIDGESHIRE.—Cambridge Sewage Farm was visited daily during the period and the first three birds arrived on April 22nd; three on 23rd; 10 at 11.45 and 15 at 14.30 on 24th, 10 at 14.00, nine at 18.00 on 25th, 26th, five on 27th, six on 28th, seven on 29th and none on 30th; two on May 1st, none May 2nd, 3rd, three May 4th, one May 5th. Many were identified as Arctic none as Common (*per* R. A. Hinde, J. Wilson). One Arctic at Roswell pits, Ely, April 26th (A. E. Vine).

BEDFORDSHIRE.—One at Woburn in last week April (Duke of Bedford).

HUNTINGDONSHIRE.—Birds passing along Ouse Valley continually, April 25th to May 8th; of these 10 were identified as Arctic, none as Common (C. F. Tebbutt).

NORTHAMPTONSHIRE.—Three Arctic at Northampton Sewage Farm, April 25th (E. A. Ward, W. Drage, K. A. Hardwick). Two of six birds in the Nene Valley, about two miles from Northampton, were identified as Arctic, April 27th (A. J. B. Thompson).

GLOUCESTERSHIRE.—Up to seven at Duchess' Pond, Stapleton, April 25th-30th; on 28th six were Arctic and one Common (H. H. Davis, Miss A. K. Dunn, G. Mogg). One probably Arctic near Cheltenham, May 3rd, 4th; nine on reservoir near Cheltenham, May 7th (D. W. Wright).

MONMOUTHSHIRE.—Four on River Usk near Crickhowell, and others on River Wye near Monmouth, April 25th (L. S. Broad).

WORCESTERSHIRE.—Seven Arctics at Upton Warren Pool on April 22nd; six 24th, nine 26th, 13 28th and May 1st, three 2nd and 5th, all Arctics (A. J. Martin). Almost all birds identified at Bittell Reservoirs were Arctics, one or two possible Common; about 30 on April 24th, 45-50 on 25th, about 55 on 26th, 40-50 27th, about 30 29th, 45-50 30th; 37 on May 1st, 32 4th, 11 5th and nine on 6th (C. K. James, A. A. K. Whitehouse, A. J. Martin, Miss M. E.

Pumphrey, J. R. Rawsthorne, G. W. Rayner, G. C. Lambourne, L. Salmon). Four on the Avon at Evesham, April 24th; one, May 3rd (A. J. Harthan, Mrs. A. J. Harthan). One on the Severn above Arley, April 27th (W. S. Peach). Four and one Arctic dead at Hewell Park, May 4th (Miss M. E. Pumphrey). One near Bordsley, Redditch, May 5th (G. C. Lambourne). One Common on the Avon at Eckington, May 11th (A. J. Harthan).

WARWICKSHIRE.—Five, of which at least three were Arctics, at Rotton Park Reservoir on April 23rd; three on 24th, one Arctic found dead; four on 25th; five on 26th, one definitely Arctic; five on 28th, two identified as Arctic; four on 29th; five on 30th; two, May 1st; one Common on May 13th (M. Larkin, G. W. Rayner, L. Salmon, J. R. Rawsthorne). One at Sutton Park on April 23rd; two Arctics there on 24th. Five Arctics at Middleton Hall Pool, April 23rd (A. Wolton). One at Lapworth, April 24th (T. H. Bradley). One at Minworth Sewage Works, April 24th (M. J. Rogers, J. R. Rawsthorne). Seven at Seaswood Pool, Nuneaton, April 24th (G. C. Lambourne). One over Avon at Stratford, April 24th (R. S. R. Fitter); one Arctic on 26th, found dead on 27th (C. A. Norris). Ten, of which four were identified as Arctics, at Earlswood Lakes on April 24th; six on 25th and four on 27th (A. A. K. Whitehouse, P. Evans, B. J. Hulett). One Arctic on Olton Mere, April 24th; two 25th, four 26th and five 27th, all Arctics (G. H. Heaton). One Arctic at Harborne Reservoir, April 25th (L. Salmon). One Arctic and another dead at Bartley Reservoir, April 25th; up to three Arctics and one dead on 26th; two on 28th; three on 29th and two Arctics on 30th (J. R. Rawsthorne, L. Salmon, G. W. Rayner). Two at Packington Ford and one Arctic at Maxtoke Lake, April 26th (G. C. Johnson, G. F. Jones). Two at Shustoke Reservoir on April 26th and 29th; one Arctic dead on 29th (G. C. Johnson, G. F. Jones, M. J. Rogers, J. R. Rawsthorne, Mrs. E. Butler). One Arctic at Whitacre Hall Pool, April 26th (Mrs. E. Butler). One Arctic at Hatton Rock and four Arctics at Wootton Wawen, April 26th (C. A. Norris). One Arctic over canal near Knowle, April 28th (A. A. K. Whitehouse). One at Edgbaston Park, May 4th (P. W. Pearson).

STAFFORDSHIRE.—27 Arctics at Bellfields Reservoir, April 25th; 16 on 27th; 33 Arctics and one possible Common on 29th; up to seven and one Arctic dead, May 3rd; four on 4th, two on 6th (W. F. Ireland, W. S. Peach, G. W. Rayner, A. Wolton). 48-50 definitely Arctic at Gailey Pools, April 25th; seven Common or Arctic on May 3rd (W. F. Ireland, W. S. Peach).

GLAMORGAN.—14 at Kenfig Pool, April 21st; seven, one of which dead, there on 26th; c. 11 on 30th (J. D. R. Vernon, B. Campbell, Mrs. B. S. Blundell). Several at Llanishen Reservoirs, April 22nd; 11 in morning, 45 in afternoon and three in evening, one dead, 23rd; 10 in morning, 20 in evening 25th; 6, one badly oiled, at 7 a.m., 10 by 8 a.m. on 27th; three 29th; two May 1st (B. Campbell, H. M. Salmon, P. Andrews, J. D. R. Vernon, G. C. S. Ingram, J. E. Beckerlegge, Messrs. Wilson and Lloyd). Seen at Caerphilly Castle Lake, April 22nd (W. Powell); five in morning, eight and two dead in evening of 24th (B. Campbell, C. Maybrey). Two at Roath Park Lake, April 23rd. 16 rising to 30 in morning, West Morfa Pool, April 26th. About 20 at Eglwys-y-myndd Pool, Margam, April 26th (B. Campbell).

CARMARTHEN.—Eight Arctic over River Towy at Carmarthen, about ten miles from the sea, April 22nd; about five terns over River Towy some thirteen miles from the sea, April 24th (D. K. Bryson).

LEICESTERSHIRE.—One Common at Willesley Lake, April 24th; four Common on 26th, two Common on 27th and one on 28th, 29th, two not identified on 30th. At Blackbrook Reservoir, 25 terns on 24th, 19 on 25th, 13 on 26th and five on 30th. Four at Saddington Reservoir, April 24th. Three Arctic at Blaby, April 24th. Three at Loughborough Sewage Farm of which one was Arctic, April 26th. Four at Freemans Weir, Leicester, April 26th. 10 probably Arctic at Stanford Reservoir on April 27th; 20 to 30 there, May 3rd; two May 8th, one Common on 11th. Five at the Eye Valley Reservoir, of which two were probably Arctic and two definitely Common, April 27th; four there on May 5th and one late bird on June 28th.

One Common at Swithland Reservoir, April 28th. One Common at Sawley Pits on April 28th, and two Common on 30th. Four Common on the Leicester Canal on April 29th, and one not identified on May 1st (*per* F. A. Bak, A. A. K. Whitehouse, R. F. Chatfield).

RUTLAND.—One Common at Seaton, April 26th, and three terns of which two were Arctic on 29th (*per* F. A. Bak).

DERBYSHIRE.—One Arctic picked up dead beneath overhead wires at Clifton, April 26th; two more Arctic found dead at Calwich, three miles down the River Dove below Clifton, April 28th (Miss K. M. Hollick). Two at Hardwick Park, April 27th (N. Harwood).

CHESHIRE.—11 at Marbury Mere, near Northwich, April 22nd; *c.* 40 on 24th, *c.* 25 on 25th, 40-50 on 28th, *c.* 60 on 29th mostly Arctic; 32 on May 1st, three May 5th, of which one was identified as Common, one May 9th, 12th (A. W. Boyd). One at Walton Reservoir, April 22nd, 11 on 23rd, two on 24th, one 25th, 26th, seven 27th, 28th (T. Gandy, A. W. Boyd). One, probably Arctic, in a field on Great Moor, near Stockport, April 23rd (T. A. Lockett). Several at Stoveton, Wirral, April 23rd to 30th (Miss M. Henderson). 15 at Pcttypool, April 24th (J. E. Breeze). Five at Rostherne Mere, April 24th, 27th, and one May 1st (E. L. Arnold). Two Arctic at Hale, near Altrincham, April 25th (P. Newton). Three at Billinge Green, near Northwich, of which two were identified as Common, April 25th (J. E. Breeze). Four Arctic at Altrincham Sewage Farm on April 25th, four unidentified 27th, two Common and four Arctic on 28th (J. Southern, R. H. Dunt, E. F. Whiteley). Two at Tabley Mere, April 26th (A. W. Boyd). One at Cotebrook, April 26th, 27th (A. W. Boyd, P. Newton). One over duckpond at Baddington, April 26th, 27th (A. Bourne). 12 at Barmere, April 27th and 12-13 on 28th (A. W. Boyd, J. Buxton). Four at Marston, near Northwich, April 27th, two on May 1st, probably Arctic (A. W. Boyd). One at Cholmondeley, April 28th. One Common in ploughed field at Church Minshull, near Crewe, April 28th (J. Buxton). One on Tatton Mere, Knutsford, May 3rd (P. Newton).

LANCASHIRE.—Eleven at Leighton Moss, near Silverdale, April 22nd; two or three on 30th, one Arctic, May 17th (J. A. G. Barnes). Three at Wrightington Fish Pond, April 22nd; at least 12 on 23rd and three on 24th, one 27th (N. Bradshaw, G. Brown). 10 at Leigh on April 22nd; 15 on 23rd, of which one was identified as Arctic; 10 on 24th, 23 25th, 15-20 26th, 27th, 20 28th, 24 29th, 30 30th; 10 on May 1st, two 3rd, 14 4th, three 5th, two 8th, of which one was identified as Arctic, one Arctic on 9th (F. R. Horrocks, T. Edmondson). Three at Wigan, April 23rd; 12 on 24th, 27th (G. Brown). One Arctic at Astley, April 24th; eight Arctics on 29th and seven Arctics on 30th (J. H. Howard). Seven Arctics at Worsley, near Manchester, April 25th-28th; six on 30th (J. H. Howard). One Arctic at Agecroft Flash, April 25th-28th (J. H. Howard, C. Carter). Ten at Hollingworth Lake, near Rochdale, April 26th, of which at least four were Arctic (C. Carter). Two Arctic at Runworth Lodge, Lostock, April 26th (G. H. Butler).

YORKSHIRE.—One at Eccup Reservoir, April 22nd; one April 25th, six on 26th, of which at least one was Arctic; six on 27th, eight on 28th, four 29th, one 30th; three on May 1st, two 2nd, one 3rd, 10 4th, one 5th and two on 7th (K. Brown, F. R. Allison). Two on Worsborough Reservoir, near Barnsley, April 26th; two at Wentworth Woodhouse, 27th (W. E. Heathcote). Two near River Ouse close to York, April 26th; one Arctic shot there, 27th. Two seen from train between Leeming Bar and Northallerton, May 1st (E. M. Rutter). Nine Arctic at Cold Hiendley Reservoirs, near Wakefield, April 27th to May 1st; one there, May 6th (A. G. Parsons). Four at Swillington, April 27th, and one Arctic there on May 12th (F. R. Allison, A. G. Parsons).

DURHAM.—One Arctic daily, April 24th to May 7th, at Hebburn Ponds (C. J. Gent).

WESTMORLAND.—Four Arctic on River Eden three miles above Appleby, April 22nd, May 2nd (R. W. Robson). About 20 at Lyth, April 30th (H. S. Millard). Five or six over River Kent at Levens Park, end April (A. Matchett).

BRITISH RECOVERIES OF BIRDS RINGED ABROAD*

COMMUNICATED BY

E. P. LEACH.

The recoveries of Starling (*Sturnus vulgaris*), Black-headed Gull (*Larus r. ridibundus*) and Common Gull (*Larus c. canus*) are too numerous to be included.

HOODED CROW (*Corvus c. cornix*).

Ringed.

Recovered.

St.	T2183	Bohuslän, Sweden, young.	23.5.38	Grantham (Lincs.)	29.10.38
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ROOK (*Corvus f. frugilegus*).

RINGED AS YOUNG OR IN BREEDING-SEASON.

R.	D57303	Schwerin, Mecklenburg	1.5.38	Chelmsford, (Essex)	16.12.42
H.	402883	Neuhaus/Elbe, Hanover, ad.	13.5.33	Deerhurst (Glos.)	23.1.42
L.	157818	Giethoorn, Overijssel, Holland	17.5.35	Haverhill, (Suffolk)	9.2.39

RINGED AS MIGRANTS.

Ringed.

Recovered.

R.	D49928	Rossitten, East Prussia, released Königsberg	10.5.39	Newport Pagnell (Bucks.)	6.1.40
R.	D51168	Rossitten	14.4.34	Sarratt (Herts.)	8.3.42

SCANDINAVIAN JACKDAW (*Corvus m. monedula*).

Ringed.

Recovered.

St.	U3240	Älvsborg, Sweden, young	5.6.39	Radlett (Herts.)	10.3.40
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LESSER REDPOLL (*Carduelis flammea cabaret*).

RINGED AS MIGRANT.

Ringed.

Recovered.

L.	B35180	Wassenaar, Zuid Holland	30.10.37	Storrington (Sussex)	19.5.39
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CHAFFINCH (*Fringilla c. caelebs*).

RINGED AS ADULT IN BREEDING-SEASON.

Ringed.

Recovered.

St.	ZM9427	Ullared, Halland, Sweden	17.5.44	Kilmacthomas (Waterford)	18.11.44
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RINGED AS MIGRANTS.

Ringed.

Recovered.

H.	8313693	Heligoland	26.10.36	Radcliffe (Notts.)	25.3.40
L.	B39322	Texel, Holland	10.10.38	Stradbally, (Waterford)	18.1.39
L.	B69435	Egmond, Noord Holland	27.10.40	Whitstable (Kent)	12.3.41
L.	B48865	Monster, Zuid Holland	24.10.38	Wantage (Berks.)	winter 1941-42
L.	B62120	Reeuwijk, Zuid Holland	10.10.40	Buchlyvie (Stirling)	26.1.45
L.	A33861	Woudenberg (Utrecht)	30.10 year uncertain	Romford (Essex)	—.4.39
L.	B47655	Spakenburg (Utrecht)	2.4.39	Worstead (Norfolk)	—.1.40
B.	14B5658	Antwerp, Belgium	4.10.39	Lampeter (Cards.)	12.1.42

*The last list of birds ringed abroad appeared in Vol. xxxviii, pp. 222—227; pp. 242—246.

SKYLARK (*Alauda a. arvensis*).

		<i>Ringed.</i>		<i>Recovered.</i>	
L.	B57782	Den Helder, Noord Holland, young	17.7.39	Wednesbury (Staffs.)	11.2.40

FIELDFARE (*Turdus pilaris*).

RINGED AS YOUNG.

St.	Y47207	Luleå, Västerbotten, Sweden	12.7.46	Clacton (Essex)	26.2.47
St.	Y36111	Boden, Västerbotten, Sweden	18.6.43	Lough Derg (Clare)	—.1.46
O.	012491	Dovre, Norway	20.6.46	Whiddy I. (Cork)	—.3.47
O.	012497	Ditto	20.6.46	Dawlish (Devon)	2.3.47
Stav.	74870	Hallingdal, Norway	11.7.44	Abbeyleix (Queen's Co.)	14.2.47
Stav.	75143	Ditto	16.6.46	Newtown Sandes (Kerry)	27.2.47
Stav.	71599	Bergen, Norway	12.6.44	Yarm (Yorks.)	6.2.45
O.	012314	Egersund, Norway	7.6.39	Axminster (Devon)	25.2.40

BRITISH SONG-THRUSH (*Turdus e. ericetorum*).

		<i>Ringed.</i>		<i>Recovered.</i>	
L.	D25134	Werkhoven, Utrecht Holland, young	26.4.38	Launceston (Cornwall)	12.1.39

CONTINENTAL SONG-THRUSH (*Turdus ericetorum philomelus*).

		<i>Ringed.</i>		<i>Recovered.</i>	
St.	Z976	Piteå, Norrbotten, Sweden, young	28.6.38	Folkestone (Kent)	25.12.38

RINGED AS MIGRANTS.

		<i>Ringed.</i>		<i>Recovered.</i>	
H.	8425293	Heligoland	28.2.40	Blickling (Norfolk)	1.7.43
H.	8550527	Ditto	16.4.43	Launceston (Cornwall)	27.2.44

REDWING (*Turdus musicus*).

RINGED AS MIGRANT.

		<i>Ringed.</i>		<i>Recovered.</i>	
H.	8425142	Heligoland	27.10.39	Welshpool (Mont.)	21.1.40

BLACKBIRD (*Turdus m. merula*).

RINGED AS YOUNG OR ADULT IN BREEDING-SEASON.

		<i>Ringed.</i>		<i>Recovered.</i>	
St.	X2760	Örebro, Sweden	24.6.37	Johnshaven (Kincardine)	—.12.38
St.	Y9563	Jönköping, Sweden Ad.	15.8.39	Norwich	17.1.40
St.	Y46570	Västergötland, Sweden	9.7.46	Huntercombe (Oxon)	15.2.47
G.	B17486	Ditto	21.6.44	Llanfyrnach (Pem.)	2.2.45
G.	B9055	Ditto	21.6.45	Haddington	28.2.46
H.	6083759	Hanover, Germany	19.5.39	Inch (Wigtown)	—.1.40
H.	6067489	Rhineland	13.5.39	Basingstoke (Hants.)	17.2.40

		<i>Ringed.</i>		<i>Recovered.</i>
H.	6067495	Ditto	14.5.39	Wadebridge (Cornwall) 28.2.40
H.	7035747	Ditto	15.5.37	Uckfield (Sussex) 28.12.40

RINGED AS MIGRANTS.

H.	7070537	Heligoland	10.3.39	Embleton (Northumb.) 17.2.40
H.	788633	Ditto	8.12.36	Scarborough (Yorks.) —.3.40
H.	7107239	Ditto	20.10.42	Grange-over-Sands (Lancs.) 19.12.42
H.	7089166	Ditto	8.4.39	Rawtenstall (Lancs.) 2.4.40
H.	7090696	Ditto	18.11.39	Ashbourne (Derby) 10.2.40
H.	7069337	Ditto	28.3.38	Market Rasen (Lincs.) —.1.40
H.	7090023	Ditto	11.5.39	Broad Campden (Glos.) 17.2.40
H.	7070977	Ditto	23.3.39	Deddington (Oxon.) 6.3.40
H.	7091871	Ditto	31.3.41	Fleggburgh (Norfolk) 10.1.43
H.	7090877	Ditto	12.3.40	Foulsham (Norfolk) 28.11.43
H.	7116765	Ditto	8.11.43	Saxmundham (Suffolk) 16.6.44
H.	7070426	Ditto	3.3.39	Good Easter (Essex) 31.1.41
H.	7090233	Ditto	18.11.39	Ramsgate (Kent) 24.2.40
H.	7116488	Ditto	29.3.43	Urchfont (Wilts.) 26.11.44
H.	7123148	Ditto	12.4.44	Bredwardine (Hereford) 20.11.45
H.	7031312	Ditto	5.10.37	Ballinteer (Dublin) 21.1.40
H.	7092831	Ditto	26.3.42	Ballinrobe (Mayo) —.2.45
H.	7070598	Ditto	13.3.39	Rosmuck (Galway) 25.12.39

LONG-EARED OWL (*Asio o. otus*).

RINGED AS MIGRANT.

		<i>Ringed.</i>		<i>Recovered.</i>
H.	343527	Heligoland	5.11.42	Thoroton (Notts.) 5.3.43

PEREGRINE FALCON (*Falco p. peregrinus*).

RINGED AS YOUNG.

St.	TA3346	Swedish Lapland	1.7.45	Stow-on-the-Wold (Glos.) 22.2.46
St.	TA6613	Västmanland, Sweden	20.6.46	Yalding (Kent) 6.12.46

KESTREL (*Falco t. tinnunculus*).

		<i>Ringed.</i>		<i>Recovered.</i>
L.	122065	Friesland, Holland young	11.6.44	Winchcomb (Glos.) 8.1.46



SPOTTED REDSHANK (*Tringa erythropus*).

UPPER.—MALE FLYING FROM LOOK-OUT ON DEAD PINE.

(*Photographed by Olof Swanberg*).

LOWER.—PARTY IN FLIGHT.

(*Photographed by Arthur Christiansen*).

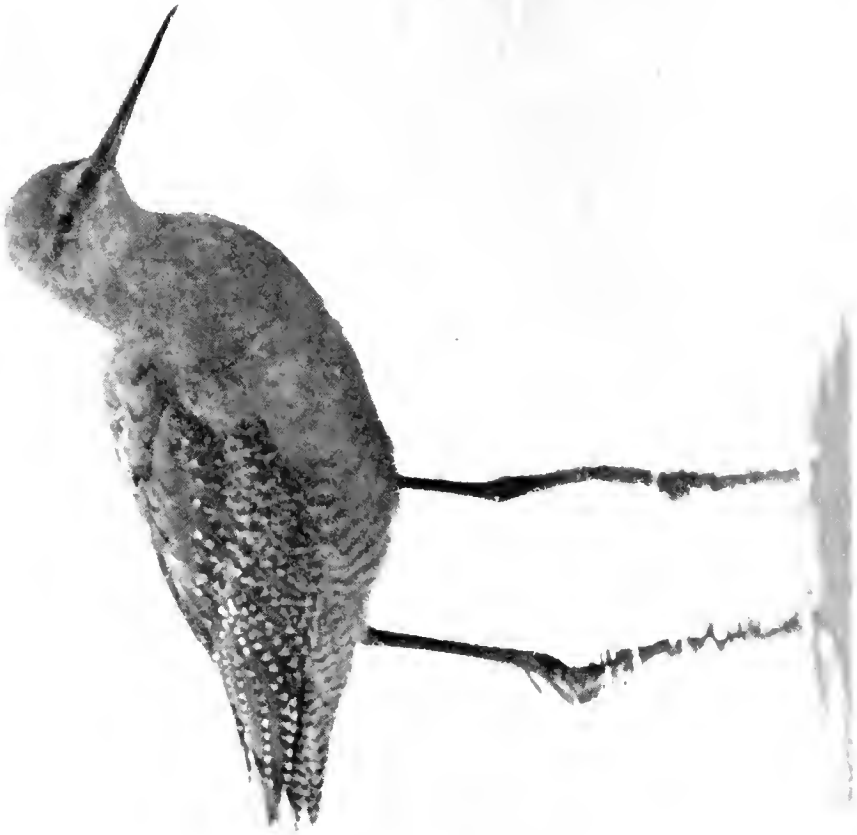


SPOTTED REDSHANK (*Tinga erythropus*).

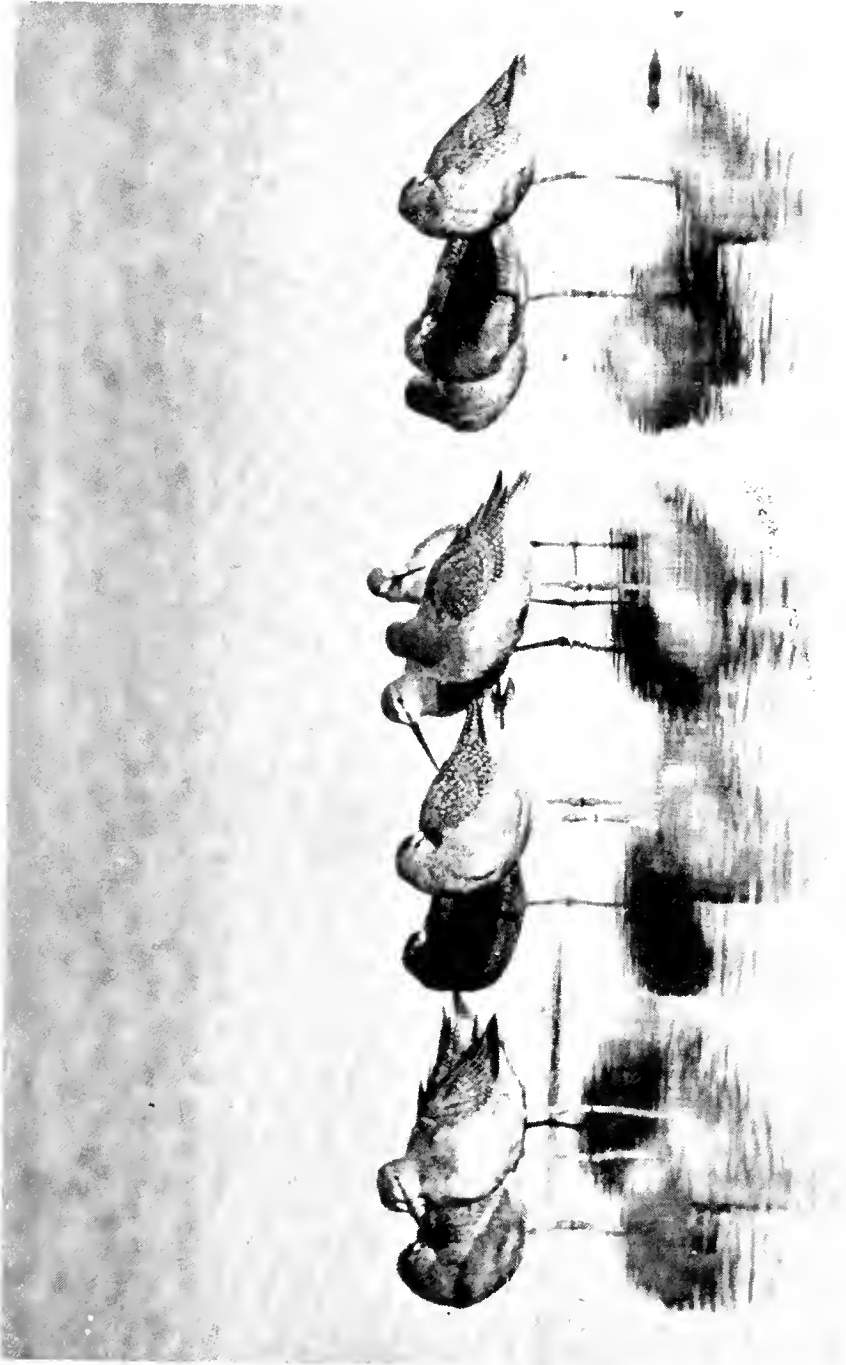
MALE ON NEST, ARJEPLOG, LAPLAND.



SPOTTED REDSHANK (*Tringa erythropus*),
NEST AND EGGS OF THE BIRD FIGURED IN PLATE 18,
(Photographed by Olof Swanberg).



SPOTTED REDSHANK (*Tringa erythropus*).
ADULT IN AUTUMN, SJÆLLAND, DENMARK, SEPTEMBER, 1941.
(Photographed by Arthur Christiansen).



SPOTTED REDSHANKS (*Tringa erythropus*).
ADULTS AND YOUNG IN AUTUMN, SJÆLLAND, DENMARK, SEPTEMBER, 1941.
(Photographed by Arthur Christiansen).



CORMORANTS' NESTS IN TREES IN KENT.

(*Photographed by T. C. Gregory.*)

(*see p. 185.*)

SPARROW-HAWK (*Accipiter n. nisus*).

RINGED AS MIGRANTS.

		<i>Ringed.</i>		<i>Recovered.</i>	
H.	5013157	Heligoland	29.4.44	Rhyl (Flints.)	7.3.45
H.	5000252	Ditto	30.10.39	I. of Sheppey (Kent)	18.11.43
H.	6023760	Ditto	30.4.34	Milborne Port (Somerset)	19.12.43
L.	168821	Wassenaar, Zuid Holland	30.9.38	Hull (Yorks)	21.1.39

OSPREY (*Pandion h. haliaetus*).

		<i>Ringed.</i>		<i>Recovered.</i>	
St.	R1955	Veckholm, Stockholm, young	5.7.45	Woodbastwick (Norfolk) spring	1947

COMMON HERON (*Ardea c. cinerea*).

RINGED AS YOUNG.

		<i>Ringed.</i>		<i>Recovered.</i>	
Stav.	30941	Bergen, Norway	23.5.39	Edinbane, I. of Skye	14.2.40
O.	11965	Rogaland, Norway	4.6.39	Rendall, Orkney	13.2.40
O.	010887	Ditto	10.6.44	Bay of Firth, Orkney	3.2.45
O.	026133	Ditto	11.6.46	Wick (Caithness)	—2.47
O.	022540	Ditto	7.6.45	Bernera, I. of Lewis	6.2.46
O.	010886	Ditto	10.6.44	Dunvegan, I. of Skye	16.4.45
O.	11878	Ditto	5.6.39	Braco (Perth)	27.1.40
O.	010869	Ditto	10.6.44	Helensburgh (Dumbarton)	—3.47
O.	017734	Ditto	7.6.45	Seahouses (Northumb.)	3.11.45
O.	022569	Ditto	7.6.45	Ashbourne (Derby)	6.3.46
O.	026157	Ditto	11.6.46	Bakewell (Derby)	8.3.47
O.	6433	Ditto	10.6.42	Stourton (Staffs.)	2.9.44
O.	017728	Ditto	7.6.45	Harpenden (Herts.)	—11.45
O.	022539	Ditto	7.6.45	Newmills (Donegal)	12.2.46
St.	S.4139	Västergötland, Sweden	29.5.44	Lochranza, I. of Arran	—4.45
St.	S5344	Ditto	23.5.46	Rampside, Furness (Lancs.)	30.3.47
St.	M10183	Ditto	18.6.38	Weston (Norfolk)	12.10.38
St.	S5762	Ditto	16.5.46	Achill Sound (Mayo)	—3.47
G.	E6378	Bohuslän, Sweden	3.6.46	Cromer (Norfolk)	—3.47
St.	S4057	Småland, Sweden	21.5.45	Halesworth (Suffolk)	18.3.47
L.	175466	Friesland, Holland	2.7.40	Maidstone (Kent)	—1.41

WHITE-FRONTED GOOSE (*Anser albifrons*).

RINGED AS YOUNG.

		<i>Ringed.</i>		<i>Recovered.</i>	
C.	272062	West Greenland	21.7.46	Tregaron (Cardigan)	30.1.47
C.	270370	Ditto	12.8.46	Inverin (Galway)	14.11.46
C.	270495	Ditto	21.7.46	Belclare (Galway)	12.2.47
C.	270366	Ditto	31.7.46	Milltown (Kerry)	26.12.46
C.	272086	Ditto	18.7.46	Enniskillen (Fermanagh)	1.5.47
C.	272064	Ditto	18.7.46	Kiltoom (Roscommon)	23.2.47
C.	271991	Ditto	18.7.46	Carlanstown (Meath)	23.12.46
C.	270368	Ditto	7.8.46	Lough Ree (Westmeath)	—.1.47
C.	271931	Ditto	8.8.46	Curracloe (Wexford)	28.2.47
C.	271932	Ditto	8.8.46	Kilmore Quay (Wexford)	24.12.46

SHELD-DUCK (*Tadorna tadorna*).

RINGED AS YOUNG.

		<i>Ringed.</i>		<i>Recovered.</i>	
Stav.	41837	Jæren, S. Norway	1.7.46	Dungarvan (Waterford)	1.1.47
L.	175673	Texel, Holland	29.7.45	Romney Marsh (Kent)	—.1.46

MALLARD (*Anas p. platyrhynchos*).

		<i>Ringed.</i>		<i>Recovered.</i>	
St.	T7622	Västergötland, Sweden young.	9.6.39	Retford (Notts.)	22.1.40
RINGED AS FULL-GROWN.					
M.	D82763	Volga Delta, Astrakhan	24.8.41	Otterbourne (Hants.)	12.2.44
Sk.	E1019	Nibe (Jylland) Denmark	8.3.45	Cropston (Leicester)	—.11.46
L.	170623	Naardemeer, Holland	20.1.39	Methley (Yorks.)	—1.40

(To be concluded.)

STUDIES OF SOME SPECIES RARELY PHOTOGRAPHED.

XIV. THE SPOTTED REDSHANK.

Photographed by

OLOF SWANBERG AND ARTHUR CHRISTIANSEN.

(Plates 17-21).

THE present photographs of the Spotted Redshank (*Tringa erythropus*) are the first of a long series of remarkable photographs of Scandinavian breeding birds—most of them species occurring with more or less regularity in this country—by Swedish and Danish ornithologists, which we have been fortunate in securing for reproduction in *British Birds*. The series includes many species of which photographs have never been published in this country, and we take the opportunity of expressing our great indebtedness to Mr. Sigfrid Durango, through whose good offices the collection has been got together, as well as to the photographers, and especially Mr. Swanberg, of Skara, Sweden, and Mr. Christiansen, of Copenhagen, for their ready co-operation.

The Spotted or Dusky Redshank is one of the characteristic breeding birds of swamps in or close to the forest belt of Northern Europe and Asia and occurs in this country not uncommonly on passage and more rarely in winter. The name Spotted Redshank was no doubt primarily suggested by the appearance of the young birds in autumn, while the alternative one has reference to the breeding plumage. The latter, illustrated in plate 18, is very striking and quite exceptional amongst waders of the sandpiper type in being predominantly black or blackish. In autumn and winter the appearance is less remarkable, but the species is easily distinguished from the Common Redshank both by visual characteristics and by the highly distinctive note, "tchu-et" or "tchu-e," which lacks the whistling musical quality of the Redshank's and is very easy to recognize when once known. In appearance the bird is rather larger than the Common Redshank, with somewhat longer legs and bill. The plumage in general is greyer, but the most obvious feature is the lack of the prominent white on the secondaries when the bird takes to flight. The young birds in autumn have the upper-parts notably more spotted and streaked in appearance than the old ones, in which the mantle is a more uniform grey.

Mr. Swanberg's photographs of the breeding bird and nest were all taken on a large swamp with a few scattered pines in a pine forest area near Arjeplog in Lapland. The upper figure in plate 17 illustrates the habit common to many of the northern waders of perching freely on trees in the breeding-season.

Mr. Christiansen's photographs are of birds on passage in north-west Sjælland, Denmark, in mid-September. B.W.T.

NOTES.

BEHAVIOUR OF BIRDS AT OIL-TANK FIRE.

As a member of the local fire brigade I was able to make some close observations on the behaviour of birds at a big oil-tank fire at Pembroke Dock in August and September, 1940. The fire blazed for many days and gave rise to intense heat and an immense column of smoke, rising to about 1,000 feet.

One would hardly credit that birds should be found around this terrifying inferno and even apparently be attracted to it. Yet gulls (*Larus* sp.) regularly made use of the up-draught and could be seen gliding all day close in to the billowing smoke column. Closer to the ground Linnets (*Carduelis c. cannabina*), Meadow-Pipits (*Anthus pratensis*) and a few Pied Wagtails (*Motacilla alba yarrellii*) persistently flew across a 300 foot moat of blazing oil and on under the heavy black smoke until lost to view. From time to time one or more would emerge and alight exhausted close to us, only to await recovery and go in again. It is difficult to believe that some did not come to grief, though I never saw even one disabled. What was the reason for this strange behaviour or how they withstood the heat I am unable to suggest. The heat was almost unbearable to human beings at a distance of 200 to 250 yards; yet these little birds must have gone within 50 yards or so of the actual flames. This continued for three or four days while I was on duty there. Returning a day or two later I found the small birds had disappeared, but the gulls remained until the fire had abated.

The area surrounding the oil-tank had been rough open wasteland, which was frequented by numbers of finches, larks, pipits and wagtails before the fire.

E. O. ELSDON.

IMMIGRATION OF CONTINENTAL JAYS INTO KENT.

THE autumn of 1947 was remarkable on account of the large number of immigrant Jays which appeared in Kent. This movement even made itself evident in the north-west part of the county. Thus on October 4th, over an area of some 25 acres of cultivation, intersected by narrow shaws and hedgerows of the usual mixed deciduous growth, an area well known to the writer and usually supporting at the most approximately a dozen Jays at this season, there were anything up to 40 or 50. On this same day some three or four and a few single birds were seen flying due south at about 300 or 400 feet up. These birds were still about the following day. An example from the parties seen on October 4th was secured, and was found to match the specimens of *Garrulus glandarius glandarius*. On October 11th another bird was obtained in Sevenoaks and this too was found to match that race.

Mr. B. M. Stratton informs me (*in litt.*) that he too had noticed the increase in the number of Jays around Ightham—" . . . there

are a great lot of Jays around. I have noticed parties of six or more in the early morning flying considerably higher than is generally their habit, but they were mainly passing in a southerly direction." Further evidence of this movement, which appears to have been very extensive, comes from Mr. J. D. H. Mackie, who sent me a note that on October 4th a party of 27 passed over open country south of Rochester, flying eastward.

On October 24th I motored through mid-Kent and in that stretch of country lying between Biddenden and Charing many Jays were seen; some of them were observed under excellent visual conditions and showed in the field very grey backs. On November 8th I visited Shipbourne and was told by a keeper that Jays were very plentiful, but also very shy. I shot one, which on investigation proved to be a Continental bird.

During the latter half of October the species was observed as abundant in Quex Park near Birchington, while a few were seen even in the sparsely wooded terrain lying between Sandwich and the coast.

I have little doubt that there will be other reports from other counties with reference to this invasion, which was doubtless on a very wide front.

JAMES M. HARRISON.

[Dr. Harrison informs us that since this note was written evidence of wintering has been afforded by three examples obtained at Shipbourne on December 10th, 13th and 27th, while birds referable to the above form have been obtained on the return migration in the Sevenoaks district on March 1st, April 7th and 14th, 1948.—EDS.]

TWITE IN NORTH WALES DURING BREEDING-SEASON.

ON August 7th, 1944, I was climbing Tryfan, near Capel-Curig in Caernarvonshire, when I saw a Twite (*Carduelis flavirostris pipilans*).

I was attracted to the bird by its continual note "tweek, tweek," and by its agitated flitting to and fro. On closer inspection, I could see that it was carrying food in its beak, but although I watched it for about a quarter of an hour, I could see neither young nor nest. All this time I had the bird under close observation through x 6 binoculars at between 10 and 20 yards range, so I have no doubt as to its identification, and the forked tail, pale bill, double wing-bar, and pink rump were all very noticeable.

It is very possible that at this date, it may have been feeding young out of the nest, which could easily conceal themselves amongst the rough growth and boulders.

T. M. GULLICK.

DISPLAY POSTURES OF ROCK- AND MEADOW-PIPITS.

WHILE on Skokholm during 1947, I noticed the following aggressive and sexual displays of the Rock-Pipit (*Anthus spinoletta petrosus*) and the Meadow-Pipit (*Anthus pratensis*) which are not recorded in *The Handbook*.

On September 13th a Rock-Pipit chased a Wheatear (*Æ. œnanthe*) using the song flight position. The same posture in flight was also used aggressively by the Meadow-Pipit. A similar posture with the tail erect and wings drooping was used by one Meadow-Pipit, calling a rapid "pipipi" note, against an intruder which flew off, and also by a male as it copulated with a female for 2 or 3 seconds. In this case the head was noted as being stretched upwards. The male had approached the female on the ground singing, and after coition had chased her.

P. J. CONDER.

AUTUMN MIGRATION OF GREAT TIT, BLUE TIT AND COAL-TIT IN THANET, KENT.

THE immigration of the Great Tit in autumn on our eastern and south-eastern coasts is now a well established and recognized fact. As to its actual prevalence, however, little is known.

With the object of getting a more accurate idea on the subject some observations were made in Thanet during the last week in October, 1947.

Up to the 28th of that month no great increase was noted, and one might even say that the Great Tit and the Blue Tit were both very sparsely distributed, and the Coal-Tit even rare, for none were seen. On that day, however, Great Tits became numerous, and a few more Blue Tits were seen. In the late afternoon a party of eight Great Tits was found in the dumps of old rusty barbed wire on the coast at Sandwich Bay. On the following day the Great Tit was even more numerous, and was met with in small parties of from two or three individuals up to about a dozen in nearly all the hedgerows and small shaws on Thanet. This abundance was maintained up to November 1st, when I left the district. On October 30th, two more Great Tits were met with in the barbed wire dumps, in company with other migrants, Hedge-Sparrow, Goldcrest and a Nightingale. On November 1st, some were found in the bushes above Pegwell Bay, and one was even seen to arrive high up from over the sea to pitch into these coastal bushes. With them were a few Blue Tits.

These observations, made over a comparatively short but nevertheless propitious time, would seem to indicate that the immigration of the Great Tit (*Parus major major*) is on a large scale, and it is my opinion, that if the matter was investigated systematically, it would also be found to occur on a wide front.

Compared with the immigration of the Great Tit, that of the Blue Tit would seem to be far more restricted, a fact supported by the very few records for the Continental race of this bird in the British Isles. Up to the present time there is indeed but a single instance of its occurrence in Kent, a female from the Sevenoaks Weald, on November 22nd, 1929 (*antea*, vol. xxxiii, p. 257).

It was suspected that the above paucity might not reflect the true state of affairs in this species, so a particular watch was made in

respect of the fluctuations in numbers of this species too. It is of course no easy matter to arrive at an accurate assessment of the respective numbers of the different species in the bands of wandering tits in autumn, but as far as could be ascertained there was approximately one Blue Tit to four Great Tits. The numbers of Blue Tits seemed to rise in parallel to those of the Great Tit during the last three days in October.

I have been able to examine nine Thanet Blue Tits and have identified four as belonging to the typical form, *Parus c. cæruleus*. Unfortunately as the distinction between this and *P. c. obscurus* rests entirely upon colour, the matter of hybridization, which in my own mind I feel convinced takes place, is very difficult to recognize. It is a pity that no such reliable method for the determination of such intermediate individuals can be used as that which I have recently demonstrated (*Bull. B.O.C.*, lxvi, pp. 24-29) as available to this end in differentiating the different populations of the Great Tit. The recognition of zones of hybridization on either side of the English Channel is a matter of great importance, and the influence these exert upon the racial characteristics in bird systematics requires close attention.

These bands of tits in Thanet in the autumn of 1947 were composed entirely of Great Tits and Blue Tits. The only other species of tit met with was a single Coal-Tit, which was located in a row of short conifers on October 31st. This bird proved to be a Continental Coal-Tit (*P. a. ater*), and this and the specimen recorded below are the second and third examples for Kent. The other specimen referred to is one in a small series of this species in the Powell-Cotton Museum, Quex Park, Birchington. It is a male obtained in the park in February, 1922, and was referred to me by Mr. T. Gullick, who recognized its characteristics as distinct from the British *Parus ater britannicus*. The specimen matches Swedish topotypes.

During the whole of the period of these observations it is worthy of note that the wind remained persistently in the S.E. quarter, and that at times it was of considerable force. Broadly it may be said then that the Great Tit is a regular immigrant and at times in considerable numbers. It journeys in parties of from a few individuals to a dozen or more. The Blue Tit, in all probability, reaches our shores regularly in smaller numbers accompanying the former species, while from the present state of our knowledge the Coal-Tit is to be regarded as a rare immigrant. JAMES M. HARRISON.

RED-BREASTED FLYCATCHER IN LEICESTERSHIRE.

ON October 3rd, 1947, Mr. K. Culbert observed a bird at Evington in Leicestershire with which he was not familiar. Full field-notes were taken, from which the bird was identified as an immature Red-breasted Flycatcher (*Muscicapa p. parva*). The bird kept to the lower branches of trees, making short flights or continually on the move from branch to branch, rarely coming down except on two

occasions when it came down to a fence. The grey-brown back, darker brownish-grey head, white throat, yellowish-creamy underbreast, and brown-black tail with half white edging, carried cocked over the back and continually flicking up and down were all noted.

This is the first occurrence of the Red-breasted Flycatcher in Leicestershire.

F. A. BAK.

COCK BLACKCAP SWALLOWING MARKING-RING

I HAVE the permission of Mr. R. H. Brand to communicate some extracts from a letter to me with reference to the Blackcap (*Sylvia a. atricapilla*) as follows:—"The young birds were ringed with B.T.O. rings on June 1st, 1947, at St. Austell, Cornwall, and on June 2nd the male Blackcap was seen to peck vigorously in the bottom of the nest. Then he brought up a ring in his bill and was observed to swallow it without difficulty. On previous and subsequent occasions, both parents were seen pecking hard in the bottom of the nest (hammering almost) and it is more than probable that the ring was "worried" off the leg of the young bird in this fashion. No further rings were eaten."

E. P. LEACH.

"INJURY-FEIGNING" OF BLACKBIRD.

ALTHOUGH published evidence of "injury-feigning" by Blackbirds (*Turdus m. merula*) appears to indicate that such behaviour is rare, I have observed it on several occasions. Thus, in 1943, when I was serving in H.M. Forces at Abingdon, Berkshire, a pair of Blackbirds had a nest in a hedge close to the machine-gun practice-butts; on one occasion when the nest, containing young about two days old, was approached the female flew out and "feigned injury" so convincingly that a witness with no knowledge of birds spontaneously described it as shamming injury to distract attention from the nest. Again in the case of a nest in a garden hedge at Headington, Oxford, examined about June 23rd, 1946, the hen, when flushed, dropped in a fluttering manner on to the path, then, drooping and dragging a wing, scrambled over the lawn to a rose-bed. Here it waited for a time and then flew off to the trees immediately behind the nest. The nest contained young about 3-4 days old. Another nest near Oxford in 1947 was visited late in the incubation-period, and even when the eggs were chipping, without any such behaviour being evoked. But when the young were eight days old and were being handled, the female readily "feigned injury." She fluttered along the ground and up on to a small thorn bush about 5 feet away, and, when I turned to watch her, dropped to the ground again, half dragged one wing for a short distance, and then flew off in a normal manner.

BERTRAM M. A. CHAPPELL.

LATE WRYNECK IN SUSSEX.

ON November 5th, 1947, while on the Crumbles, Eastbourne, I observed a small greyish-brown bird hopping about on the ground

amongst the bushes. Examination through binoculars (12 x 40) showed this to be a Wryneck (*Jynx t. torquilla*). I had the bird under observation for about 20 minutes, at times getting to within 20 yards of it, and was able to see every detail of its mottled, streaked and barred plumage. It hopped with elevated tail and flew with a slow, undulating flight. *The Handbook* gives only two November records for the Wryneck, November 14th, 1925, Co. Cork and third week, 1916, Kirkcudbright, and no Sussex record later than October 5th, 1920.

D. D. HARBER.

CALLS OF SHOVELER WITH YOUNG.

IN connexion with the calls mentioned (*antea*, p. 25), I find that I have note of a female Shoveler (*Spatula clypeata*) seen on May 28th, 1947, with a large brood of tiny ducklings to which, on return after I had disturbed her, she used a call to collect them to her which I rendered as a quick double "quack-quack—quack-quack" with equal emphasis on the two syllables. The call was discontinued when she swam away with her brood.

ROBERT F. RUTTLEDGE.

OSPREY SUMMERING IN LANCASHIRE.

AN Osprey (*Pandion h. haliaetus*) was present for three months during the summer of 1947 on Leighton Moss, North Lancashire. When I visited the Moss on June 12th McDowall the gamekeeper, told me that a bird which he believed was an Osprey had been present since the beginning of the month. Later that day, when the late E. H. L. Dickson had joined us, we all three approached to where the bird was perching on the top of a dead tree on the island, until we eventually stood in the open not more than sixty yards from it. Only then did it take wing, carrying with it a fish which it must have caught more than an hour before and which it was seen to be grasping in both feet as it slowly flapped and sailed over our heads. We had the bird under observation on many days up to September 2nd, but not again at such close range.

Although the dark brown back and wings had some paler brown and buff markings I do not think the bird was less than two years old. In August when the depth of water in its favourite fishing pool had shrunk to an inch or two and the fish were almost on the surface, the Osprey flew at not more than ten feet above the water instead of 50-60 feet as formerly. It was odd to see it flop on to the water and apparently stand on the surface for a few seconds before flying up with a fish to a perching place. All who enjoyed a sight of the Osprey have to thank the landowners, the shooting tenant and the gamekeeper who gave such good protection to this rare bird.

R. A. H. COOMBES.

COLONY OF TREE-NESTING CORMORANTS IN KENT.

IN the first week of May, 1947, when bird watching on an inland marsh in Kent, I noticed several Cormorants (*Phalacrocorax*

carbo) searching flood debris and carrying away twigs, sedge, flags and other aquatic vegetation.

On May 10th, I was able to follow up the flight of the birds and found two completed and one partially constructed nest built in a line of dead willow trees surrounded by flood water. The first egg was laid on or about May 12th and three further nests completed during that month.

Unfortunately the existence of the colony became widely known and following the partial subsidence of the flood waters in early June the nesting site was repeatedly raided, all eggs being taken and eventually the nests themselves destroyed. The majority of the adult Cormorants then left, but many immature birds remained in the locality throughout the summer months. T. C. GREGORY.

GANNET FOLLOWING BOAT AND TAKING FISH-REFUSE.

ON September 15th, 1945, near Tobermory in the Inner Hebrides, I watched a Gannet (*Sula bassana*) follow the steamer on which I was travelling, for about two miles. Like the Herring-Gulls (*Larus a. argentatus*), it remained all the while about forty yards astern and a few feet above the sea, every now and again hovering momentarily before dropping down and apparently swallowing some sort of refuse as it was thrown from the boat. At least twice I saw it take fish-remains ejected from the ship. When it dropped, it was never entirely submerged, though it often remained half under the water for two or three seconds; this might suggest that it was also feeding on live fish.

The Handbook notes only one case of a Gannet hovering over the surface shoals and states "fish-refuse said to be taken occasionally." As to the following in the rear of the ship, I can find no mention of this at all.

I. J. FERGUSON LEES.

[This note was received prior to the publication of the recent notes on Gannets taking bread at sea (*antea*, pp. 26 and 123).—EDS].

"INJURY-FEIGNING" OF COMMON SNIPE.

I HAVE one observation of "injury-feigning" by the Common Snipe (*Capella g. gallinago*) somewhat similar to that described by Mr. K. G. Spencer (*antea*, p. 27).

On June 21st, 1942, in Co. Galway I found a nestling Common Snipe. The parent bird flew excitedly overhead at a height of about 15 ft., at times dropping or fluttering down to just above the ground with the appearance of having a broken wing. It would then fly up again and repeat the act, doing so over and over again. While acting thus a note unfamiliar to me and which I rendered as "tah-tuc, tah-tuc" was uttered. This I took to be a warning to the chicks.

ROBERT F. RUTLEDGE.

AMERICAN PECTORAL SANDPIPERS IN SUSSEX.

FROM October 5th to October 12th, 1947, there was an American

Pectoral Sandpiper (*Calidris melanotos*) at Thorney Island in Sussex, and on the last occasion the spot was visited two of this species were seen. These birds were watched at various times by Messrs. E. A. Blake, G. M. Moll and J. A. Smith, as well as by myself. Once one of them allowed approach to within a few yards for about twenty minutes and I was able to note down the following characteristics. . Legs, possibly rather long in proportion to the size, appeared yellowish-white to greenish-yellow, according to the light. Bill dark brown with yellowish-brown patch at base of lower mandible; shaped rather finely, with a slight but distinct decurved tip. The yellowish patch on the lower mandible was absent in the second bird. Crown dark; sides of face much lighter, with an indistinct white eye-stripe. White beneath chin. Breast buff-coloured, streaked in irregular lines with black, diamond-shaped markings, and very sharply defined from the pure white belly. Mantle and back gave a tortoiseshell effect. Feathers dark, but each one distinctly edged with wide, pale buff border. Tail pale grey with blackish central feathers *pointed* and projecting beyond the outer ones.

Noticeable points in flight. A long, thick black line running down lower back, rump and tail, bordered on the two former by white and on the last by grey. Tail depressed and expanded at start of flight, so that longer central feathers were more noticeable. No markings apparent on the wings in flight. Flight at start was slow and laboured, with a slight zigzag. Once the bird was under way, the action was more rapid and lively and resembled that of a Green Sandpiper (*Tringa ochropus*).

The voice was a lowish, guttural, two-syllabled "chirrp-chirrp," uttered from two to six times as the bird rose, even if it only flew for a yard or so. It vaguely resembled that of Curlew-Sandpiper (*Calidris testacea*). The bird was very fond of skulking in the dead sedge, which grew in the small mud-patch which was the only place where the Pectoral Sandpipers were seen. Several times it disappeared under cover as we watched it. It was very tame, allowing approach to within three yards and then only took flight for a few feet. Finally, it had a very marked habit of keeping its neck stretched out—which made it look taller and slimmer and very much like a small Reeve (*Philomachus pugnax*). Yet the first time I saw it, it appeared dumpy and short-necked.

The second bird appeared slightly larger, so that I think it was a male, while the first was a female. In addition, its legs were more of a brownish-yellow. The birds were always alone and always on the same small mud-patch, which is one end of a drain.

The last we saw of them was as they flew off over the mud-flats on October 12th. They were not to be found a week later.

I. J. FERGUSON LEES.

TWO AMERICAN PECTORAL SANDPIPERS IN IRELAND.

AN American Pectoral Sandpiper (*Calidris melanotos*), shot near Birr, Co. Offaly, on September 20th, 1947, was sent by Mr. Gallwey Foley to the National Museum, Dublin, where it was identified. Unfortunately, owing to decomposition, it could not be sexed; and the wing measurement of 143 mm., being in the overlapping region of male and female did not help. From its plumage, including a conspicuous white chin and throat, it was considered to be an adult. The registered No. of the skin in the Museum is 50,1947.

A second American Pectoral Sandpiper was shot on September 28th, 1947, in the neighbouring county of Leix, near Ballycolla, Granston, by Dr. Quill and sent to the Museum for identification. This bird also, owing to its condition, could not be sexed, but from its size with a wing measurement of 134 mm., it was judged to be a female, and from the buff tinge of its plumage and less amount of white on chin and throat it was considered to be immature. The skin is in the Museum, registered No. 51,1947. The identification of both birds was confirmed by Col. Meinertzhagen.

These are the sixth and seventh specimens obtained in Ireland, the former occurrences being: Galway (1), October, 1888; Mayo (3), October, 1900, September 1901, and September, 1935; and Donegal (1), October, 1930.

P. G. KENNEDY.

FLEDGING-PERIOD OF LAPWING.

DAILY observations on a brood of Lapwings (*Vanellus vanellus*) in north-east Cheshire suggest a longer fledging-period than that normally recorded. On June 28th, 1947, a newly-hatched chick strayed from the nest before the others, which were escorted away by the adult bird on the following day. On August 8th the young were seen for the first time out on the open meadow; they occasionally flapped their wings, but never left the ground. When chased they ran for cover and did not fly. Seven hours were spent watching on this day. But on August 9th the young Lapwings were seen to make three short flights of at most 15 yards in the course of 9 hours watching. The period from hatching to first flight was therefore about 42 days.

The *Handbook* gives a fledging-period of 33 days (R. H. Brown), but in the Additions and Corrections cites D. N. Thompson, "Unable to fly until 39th day."

S. S. BATES.

[In addition to his period of 33 days, Brown also gives one case of 30 days (*antea*, Vol. xxi, p. 282). Two other records confirm a period of 33 days, namely that by Thomas in Carmarthenshire (*antea*, Vol. xxxiii, p. 85) also to first flight, and another by Laven in Prussia (*Journ. f. Orn.*, 1941, p. 61).—EDS.]

THE BILL COLOUR OF THE ARCTIC TERN.

IN the breeding-season the bill of the Arctic Tern (*Sterna macrura*) differs from that of the Common Tern (*S. hirundo*) in lacking the

black tip which is a prominent feature of the latter and also in its strong blood-red colour as opposed to the distinctly more scarlet shade of red in the Common Tern.

The character of the presence or absence of the black bill tip is often used in differentiating the two species and for all practical purposes is perfectly valid for breeding birds and the great majority of those seen on passage. Occasionally a Common Tern has no, or hardly any, black tip, and even amongst breeding birds an Arctic Tern may exceptionally show a little black at the tip of the bill, but this is so infrequent as to be, as I have stated in *The Handbook*, "of almost no practical importance" in the breeding-season. It is only exceptionally that observers are afforded an opportunity such as occurred during the remarkable inland movement of Arctic Terns in 1947 of examining these birds on spring migration in some numbers and that at an early stage of the passage. As recorded elsewhere in this issue (pp. 167-173) the birds were chiefly observed from April 22nd to the end of the month. As available data indicate that the normal arrival time of Arctic Terns in this country is late April (anything before April 20th is treated as notably early in *The Handbook*) and birds apparently do not arrive on the breeding-places in the northern Scottish islands until mid-May, it will be apparent that the inland movement of 1947 coincided with the opening stages of the passage. At this period some of the birds retained evident traces of the blackish bill colouring of winter, although in many the bills were fully coloured. Thus of eleven birds examined by the writer at close quarters on the ground at Port Meadow, Oxford, on April 26th, a number retained blackish tips to the bills, in some very slight and in others quite pronounced. All these were identified quite conclusively as Arctic Terns, having the characteristic short legs of the species and the red of the bills of the typical Arctic colour. Similar observations were made elsewhere, and it was satisfactory that one bird with the bill in the transitional stage under discussion came into the writer's possession, thus confirming the field observations. This was picked up dead at Ham Fields Sewage Farm on April 25th or 26th and was forwarded to the writer by Mr. R. S. R. Fitter. In it the typical Arctic Tern red shaded into black at about one-third of the length of the bill from the tip.

It is thus clear that at the time of their first arrival in this country a not inconsiderable proportion of Arctic Terns may still retain more or less prominent traces of the blackish winter colouring at the tip of the bill, and this fact should not be overlooked by field observers. On the other hand it is worth stressing that even in the transitional stages the shade of red of the bill appears to be completely reliable for differentiating the two species provided the observer is familiar with the difference and obtains a good enough view.

B. W. TUCKER.

LESSER BLACK-BACKED GULLS WINTERING INLAND
IN NORFOLK.

FOR several years Lesser Black-backed Gulls (*Larus fuscus* subsp.) have been observed in winter in the Breckland district of Norfolk and Suffolk, and it appears that small numbers—possibly about 100 birds in all—pass the entire winter inland in this area. The gulls seem to spend the night on the heathland meres, especially on Micklemere, a sheltered lake of some 29 acres situated in a park north of Thetford. Here on December 23rd, 1946, 26 adults and 4 immatures were counted on the water; and on December 27th, 1947, a loose flock of 60 birds was seen flying towards the mere at dusk. By day the gulls scatter and may be seen singly or in small numbers all over the district, feeding on heaths and cultivated land, or resting on the meres and rivers. December 19th is the earliest date on which the gulls have been seen by us; observations are as yet insufficient to determine how long they remain, but it is probably until March, so long as the larger meres remain unfrozen.

Birds examined closely have decidedly dark mantle and upper wing surface, of a uniform slate-black colour, and they are, in our opinion, almost certainly of the Scandinavian sub-species (*Larus f. fuscus*).

Other species of gulls wintering in the district all seem to flight to the sea for the night as usual, except for a few Black-headed Gulls (*Larus r. ridibundus*).

Inland wintering of the British race (*L. f. grællsii*) has been recorded recently by A. W. Boyd for Cheshire (*antea*, Vol. xxxviii, p. 345), and J. A. G. Barnes shows in this article that wintering has become more regular in N.W. England and N. Wales in the last 15 years or so. It would be interesting to obtain data from other areas on the exact status of both sub-species in winter. *The Handbook* does not mention inland wintering of this species, but in view of its regular inland nesting and migrations the habit does not seem surprising.

D. E. SERGEANT AND A. E. VINE.

EARLY GLAUCOUS GULL IN SUSSEX.

ON August 29th, 1947, I obtained good views of an adult Glaucous Gull (*Larus hyperborens*) on Thorney Island, Sussex. It was a very large bird and as big as the biggest Great Black-backed Gulls (*Larus marinus*). The white primaries and pale grey mantle were clearly noted, and in flight the heavy build was striking. The lemon-yellow orbital ring was not seen, but the very noticeable size and the shorter wings, which, when folded, were level with the end of the tail rule out the sleeker Iceland Gull (*Larus glaucooides*). A Great Black-backed Gull was near enough for comparison for a short while.

Adults are rare in the south and this is only the second August bird recorded in Sussex (the other, August 5th, 1927).

It may be interesting to note here that an adult Iceland Gull was

seen by Mr. John Walpole-Bond at Hove, Sussex, on August 14th, 1947—another very early date, though this species has occurred a number of times in July and August. I. J. FERGUSON LEES.

WATER-RAIL'S NEST ON EXPOSED SITE.

At a small but popular tourist centre on the shore of Loch Lomond, Stirlingshire, a wooden footbridge crosses a stretch of marshy ground between the main road and the shore of the loch. When crossing this bridge on August 10th, 1947, I saw a Water-Rail (*Rallus a. aquaticus*) standing upon flattened reeds some 15 yards from the bridge and 20 yards from the road.

On closer inspection I saw that this bird was standing beside a nest upon which its mate was sitting in full view, no evident attempt at concealment having been made. Neither bird seemed in the least disturbed by the noise and bustle of the scores of holiday-makers, hikers, and cyclists who thronged the road and the adjoining bridge.

In view of the fact that the spot is very much frequented during the summer season, and that the nest was in such an exposed position, it would be interesting to know whether the birds brought off young successfully; but I was unable to revisit the nest until September 3rd, when all trace of the occupants had disappeared.

J. CASSIDY.

SONG-PERIOD OF HEDGE-SPARROW.—With reference to a recent note on this subject (*antea*, Vol. xl, p. 288), Mr. C. W. Towler sends us notes of Hedge-Sparrows (*Prunella modularis occidentalis*) heard in song at Biggleswade, Bedfordshire, on September 12th, 1945, and September 8th, 9th and 12th, 1946. As pointed out in the note referred to, *The Handbook* chart indicates song in the first half of September as exceptional and in the last half as irregular. Mr. Towler expresses the opinion that song is frequent, though irregular, throughout the month.

REDSHANK'S NEST WITH EIGHT EGGS.—Mr. John Reynolds gives us details of a Redshank (*Tringa totanus britannica*) nest containing eight eggs at Pagham Harbour, Sussex. The nest contained two eggs on April 24th, 1946, six on 27th and eight in the evening of 29th. Incubation began on April 30th, but the clutch was later destroyed.

WATER-RAIL PERCHING IN TREE.—Mr. E. L. Roberts has sent us details of a Water-Rail (*Rallus a. aquaticus*) which he saw on March 27th, 1937, perching in willows (not pollard) bordering a reedy creek on the Lincolnshire marshes. When first seen it was on a thick branch at a height of about 8 feet. When approached it flew first to another willow about five yards away and then to another, perching in both trees on similar branches at heights of not less than 10-12 feet.

The Handbook mentions perching in hedges and low bushes, but not in trees.

LETTERS.

THE ROYAL NAVAL BIRD-WATCHING SOCIETY.

To the Editors of BRITISH BIRDS.

SIRS,—The Royal Naval Bird-Watching Society has now been in existence for just over a year. It has some two hundred and sixty members drawn from the ranks of the Royal Navy, Royal Australian, Canadian and New Zealand Navies. These observers range from Admirals, Able Seamen, Sergeants Major of Marines to Wrens, Sea Cadets and Admiralty Civil servants!

The main objects of the Society are:—

(a) The encouragement and promotion of Bird-Watching in the Royal Navy and Dominion Navies with special reference to Bird-Watching at sea.

(b) The co-operation with other ornithological societies in inquiries connected with birds and bird movement at sea.

The society is affiliated to the British Trust for Ornithology and has an Advisory Panel of expert British ornithologists to assist it.

The society is well aware of the enormous task it has set itself and hopes that any of your readers who are interested in the scheme will help it in its early struggles. The society is particularly anxious to obtain records, past and future which any observers have made when carrying out sea voyages. Such records should include where possible:—

(a) Ship's position at time of observation.

(b) Date and time of observation and weather conditions.

(c) Species of bird(s) seen, with evidence of identification when necessary.

(d) General remarks to cover behaviour.

In order that the society can build up a reference library covering its own particular field it would appreciate reference to, or copies of, any literature dealing with land and sea-birds at sea.

Contributions and/or requests for further information should be sent direct to me.

NOEL A. BEAL, Major, R.M.

Holnicote, Tanners Hill, Hythe, Kent.

A DISEASE OF SHEARWATERS.

To the Editors of BRITISH BIRDS.

SIRS,—In 1946 and 1947 outbreaks of a severe and often fatal disease occurred among juvenile Manx Shearwaters (*Puffinus p. puffinus*) on Skomer Island, Pembrokeshire. The chief signs of the disease were conjunctivitis and/or blisters on the webs of the feet.

Information from other parts of the country would be a great help in studying the disease. If any ornithologist notices a naturally occurring disease similar to the one described above in any species, I would be grateful if he would communicate with me at Clare College, Cambridge.

D. SURREY DANE.

MARKED BIRDS.

To the Editors of BRITISH BIRDS.

SIRS,—During the summer months a number of birds, mainly sea-birds, will be released after marking with dyes on the plumage and coloured rings on the legs, in connexion with a large-scale test of their navigational capabilities.

Any reports of their movements will be welcomed and should be sent to the undersigned, Department of Zoology, Cambridge, with full details of date, time and place, nature of dye marks and arrangement of rings (coloured and aluminium).

G. V. T. MATTHEWS.

NOTICE TO CONTRIBUTORS.

British Birds accepts papers and notes dealing with original observations on the birds of the British Isles and Western Europe or, where appropriate, on birds of this area as observed in other parts of their range. Review articles on subjects of current ornithological interest will also be considered.

Contributors are asked to observe the following points, attention to which saves the waste of much editorial time on trivial alterations.

MSS. if not typed should be clearly written. Authors of papers, especially those containing systematic lists, lists of references, tables, etc., should consult previous papers on similar lines in *British Birds* as a guide to general presentation and set-out, including use of particular type, stops, and other conventions, such as date following the month (January 1st, etc., not 1st January), names of books and journals in italics, not inverted commas, and so on. Capital initial letters are to be used for proper names of definite species, but not for names used in a general sense or covering more than one species: thus "Great Tit," but "flocks of tits." [In systematic lists the whole name should be in capitals]. The scientific name (underlined in MS. to indicate italics) follows the English name in brackets without any intervening stop. Scientific nomenclature follows *The Handbook of British Birds* or H. F. Witherby's *Check-List of British Birds* based on this. When the subspecific name (if this is used) repeats the specific name the initial letter only should be used for the latter; otherwise the whole name should be given in full: thus "*Parus m. major*," but "*Parus major newtoni*."

Notes should be drawn up in as nearly as possible the exact form in which they will be printed, with signature in BLOCK CAPITALS, and the writer's address clearly written on the same sheet. If more than one note is submitted each should be on a separate sheet with signature and address repeated. Though suitable headings and scientific names can be added by the Editor, if necessary, they should be inserted by authors as far as possible. Communications should always be as concise as possible, though reasonable detail can be given where this is important. Notes or records of subsidiary importance may be abbreviated or otherwise modified by the Editor for inclusion in the section of "Short Notes." Maps or graphs must be neatly and boldly drawn in Indian ink, with due allowance for reduction when necessary.

Photographs are accepted primarily as illustrations of papers or notes, but good prints of species rarely or not previously photographed or illustrating important points of habits, behaviour or field characters will also be considered on their own merits.

Notes and papers for publication and other communications of strictly editorial nature may be addressed direct to the Editor of *British Birds*, 9, Marston Ferry Road, Oxford. Enquiries or requests for information not immediately related to material for publication must be accompanied by a stamped and addressed envelope.

Short notes accepted for publication without material alteration are not acknowledged by post except by special request, but proofs are submitted to the writers in due course. Authors of papers receive 20 separate copies free of charge. Any additional separates required must be ordered when returning the proofs and be paid for by the author.

The Subscription to "*British Birds*" as from January, 1948, will be £1 0s. 0d. p.a.

IMPORTANT NOTICE.

BRITISH BIRDS is shortly to publish an important paper entitled A STUDY OF THE BIRD LIFE OF THE NORTH ATLANTIC

By M. N. Rankin and E. A. G. Duffey.

This notable paper describes the results of observations made on twenty-eight transects of the North Atlantic on convoy service during the war and is an addition of first-rate importance to the literature of the subject. It occupies 42 pages and is illustrated by numerous distributional maps.

Owing to the length of the paper and the heavy pressure on the limited space in the ordinary numbers of *British Birds* it has been decided to issue it as a special supplementary number with one of the summer issues. It will form an integral part of the current volume and sets will not be complete without it. The publishers regret, however, that under present conditions it is impossible to issue the supplement to subscribers without a small extra charge of approximately 2s. 6d.

If any subscribers do not wish to receive the supplement will they please inform the Publishers before the end of May.

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VITAL STATISTICS OF THE MOCHRUM CORMORANT COLONY

BY

LORD DAVID STUART.

THE breeding-colony of Cormorants (*Phalacrocorax c. carbo*) to which this paper refers is situated on low rocky islands in the Castle Loch in the parish of Mochrum, Wigtownshire.

The birds have bred there probably for a very long time. They were there in 1867 when Robert Gray visited the place, and there is a picture of them at the nesting-colony in an estate map in my possession dated 1790. There is an almost undoubted reference to them in a *Description of the Sherifffdom of Wigtown* written in 1663; while according to Sir Andrew Agnew a place name near the colony is derived from the Celtic for Cormorant.

The size of the colony has never varied much since I can remember, and from counts and estimates made by R. W. S. and H. W. Wilson (1909); R. Chislett (1913); J. W. McWilliam (1934 and 1939); F. C. R. Jourdain (1935) and myself (1946 and 1947) I should say the yearly average of breeding birds is 200-220 pairs.

Between 1919 and 1939 some 820 nestlings have been ringed by the late J. G. Gordon, Lord Bute and myself, and have yielded 172 recoveries, an analysis of which follows. All recoveries of birds ringed since 1939 are excluded from this paper.

Table I gives the number of birds recovered at different ages. Only 3 of these birds were recovered where ringed, and may therefore be regarded as never having left the nest as they were picked up dead on the island where they were born (2 of them in their first month of life and 1 in its second). As all the birds marked were ringed as nestlings, I have compiled this Table on the assumption that they were ringed when 3-4 weeks old; therefore the figures given represent their age from date of hatching.

TABLE I. Mortality as Shown in Ringing Returns.

<i>Months of 1st Year.</i>												<i>Years of Life</i>							<i>Total.</i>	
1	2	3	4	5	6	7	8	9	10	11	12	2	3	4	5	6	7	8-19		
2	7	21	19	15	18	10	14	7	5	1	2	17	10	10	6	2	2	4	172	
<div style="text-align: center;"> <p>121 70.34%</p> </div>												33.33%	29.4%	41.6%	42.8%	33.33%				

The Cormorants begin to frequent the colony in March, and by the end of September it is quite deserted again, all the young having flown by then. A glance at Table II will show what a heavy mortality of juveniles begins in September and lasts for

six months, thereafter the death rate remaining fairly even. This I believe is the case with all ringed British birds of which a sufficient number have been recovered to allow analysis.

TABLE II. Mortality in Each Month and Year of Life.

Year of Life.	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1st	10	13	5	4	1	3	—	5	3 ²	16	12	20	121
2nd	1	3	—	1	1	1	1	2	2	1	2	2	17
3rd	3	1	3	—	—	—	—	1	—	—	1	1	10
4th	1	1	—	1	1	—	2	2	—	1	1	—	10
5th	3	—	—	—	—	1	2	—	—	—	—	—	6
6th-19th	2	1	—	—	1	—	1	3	—	—	—	—	8
	20	19	8	6	4	5	6	13	34	18	16	23	172

The remarkable thing which emerges from an examination of Table III is the large number of Cormorants which are shot. Out of 70 per cent. which died in their first year, 67 per cent. were recorded as shot, in their second year 64 per cent. and in their third year 30 per cent., which confirms the supposition that as they grow older they learn by experience to avoid danger.

TABLE III. Manner and Year of Death as Given in Ringing Returns.

Year of Life.	Shot or killed.	Found dead.	Caught in nets.	Mode of death unrecorded.	Total.
1st	81	24	9	7	121
2nd	11	4	2	—	17
3rd	3	5	1	1	10
4th	5	2	2	1	10
5th	2	3	1	—	6
6th-19th	4	2	—	2	8
	<u>106</u>	<u>40</u>	<u>15</u>	<u>11</u>	<u>172</u>

Percentage ... 61.62 23.25 8.72 6.39

Mr. D. Lack (1946) has recommended that January 1st should be used as the date from which to calculate the survival of birds on the basis of ringing returns. It seems to me, however, that the date should be adjusted according to the species which is the subject of the analysis. It has been established that there is a higher mortality among juvenile than adult birds; and it appears that this high death-rate occurs during the first six months after the young leave the nest. Thus, I submit, although January 1st is a suitable date for calculating the survival of the Blackbird (*Turdus merula*), Song-Thrush (*Turdus ericetorum*), and most

passerines, the date for calculating, say, the Raven (*Corvus corax*), an early nester, should be November or December 1st, that is six months after the young leave the nest. Now Table IV shows that the bulk of the Mochrum Cormorants leave the nest in September; I have taken, therefore, a six-month period up to the end of February and based my calculations on each March 1st of life. It is true that I have included 5 birds which were recovered in August (3 of which never left the nesting-site) but their inclusion makes little difference to the main facts which are revealed by the analysis.

TABLE IV. Mortality from time of leaving nest till first March 1st of life, then yearly from each subsequent March 1st of life.

	To first March 1st of life.	1st	2nd	3rd	4th	5th	6th-12th	Total.
Recoveries	108	27	10	11	7	3	5	171
Percentage	63	43	28	42	46	37		
Expectation of life in months }	14.5	25.94	29.11	25.3	27.53	33.63		

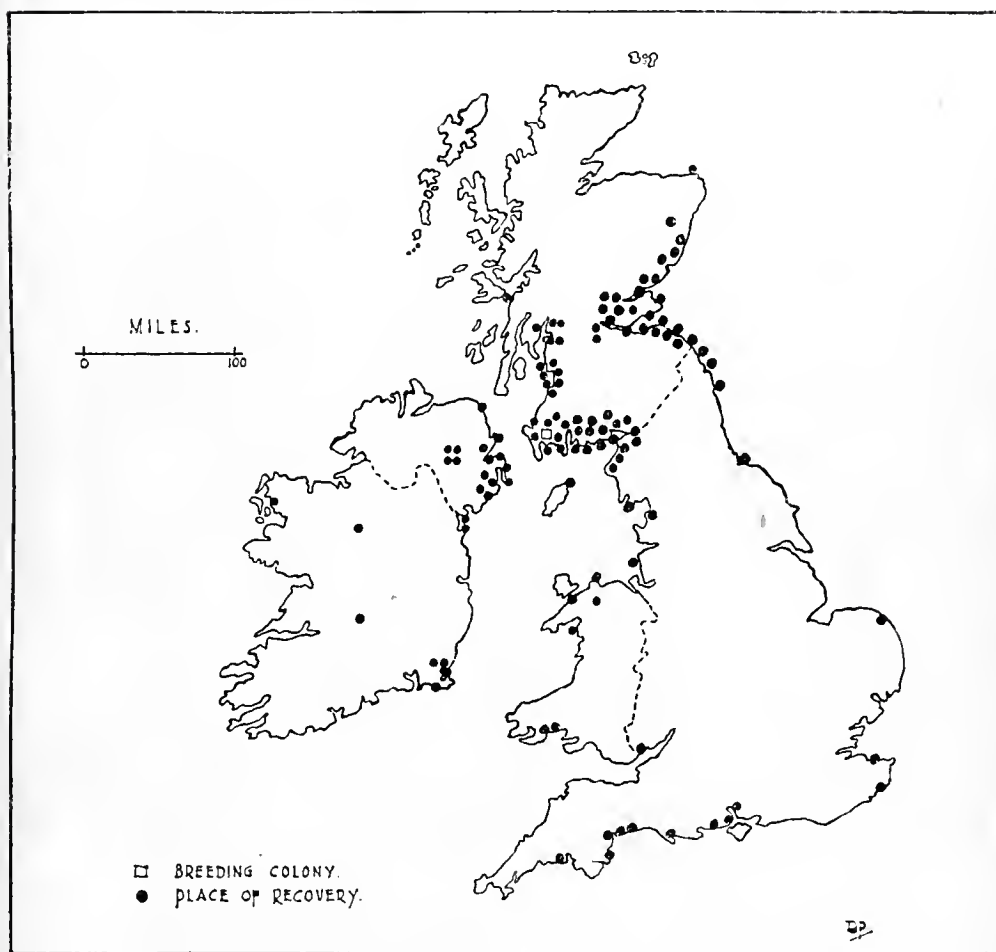
NOTE. The bird which lived into its 19th year is excluded from the above table.

In Table V I give Lack's figures for the Blackbird (*Turdus merula*), Song-Thrush (*Turdus ericetorum*), Starling (*Sturnus vulgaris*), and Lapwing (*Vanellus vanellus*) along with my figures for the Mochrum Cormorants over a comparable period; from which it is seen that they agree closely. I must stress the point, however, that in Tables IV and V I have given the Cormorants expectation of life as shown by the ringing returns. Actually they probably live longer than these figures suggest.

TABLE V. Vital Statistics of Mochrum Cormorants compared with some other Birds.

	Percentage of Aug.-Dec. re- coveries which were in first year of life.	Mortality in next year of life cal- culated from first Jan. 1st.	Expectation of life on first Jan. 1st.
Blackbird ...	74%	40%	1.9 years
Song-Thrush ...	65%	45%	1.6 years
Starling ...	56%	44%	1.6 years
Lapwing ...	44%	30%	2.6 years
	Percentage of Aug.-Feb. re- coveries which were in first year of life.	Mortality in next year of life cal- culated from first March 1st.	Expectation of life on first March 1st.
Cormorant ...	63%	43%	2.2 years

Lack (1943 and 1946) in his analysis of the returns of British ringed Cormorants found that there was an impossibly high apparent mortality, and that working on the figures arrived at from ringing returns it would be impossible for the species to maintain its breeding stock. Precisely the same is true of the Mochrum Cormorants. If one takes 200 pairs as the average number of breeding birds in the colony and say they rear 3 young each, that means that 600 leave the colony each year; but working on the percentages given in Table I only some 54 would survive to breed in their fourth year.

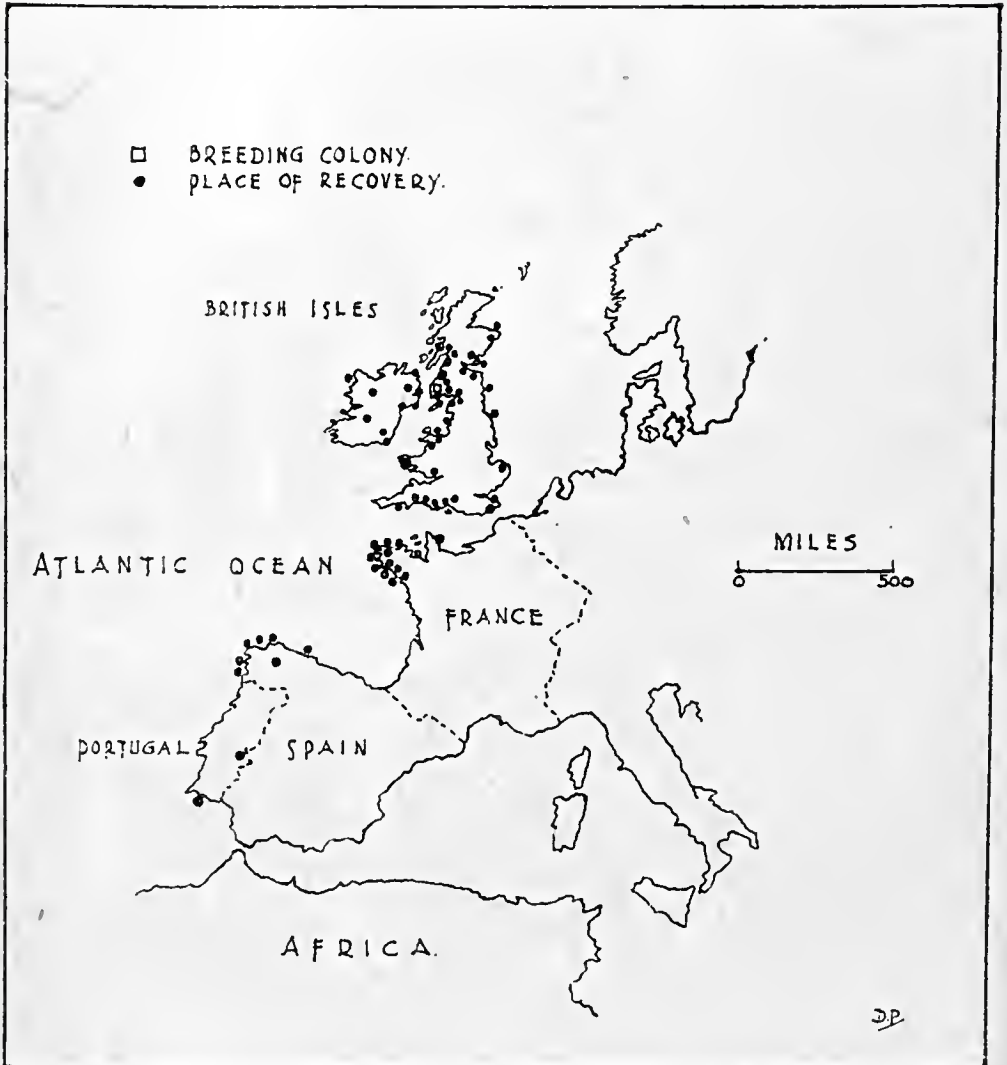


MAP I.—SHOWING PLACES OF RECOVERY IN THE BRITISH ISLES OF CORMORANTS RINGED AS NESTLINGS AT MOCHRUM.

Unfortunately there are not sufficient returns of adults to work out how many of them survive, but from what figures we have it is clear that on paper sufficient numbers of young and adults do not survive to keep up the average breeding stock of 200 pairs.

It is evident that from our present knowledge of ringing returns the figures for average life and the expectation of life at various ages are not reliable. This is caused by two factors.

In the first place it is probable that a certain number of rings become worn and drop off. Kortlandt (1942) has shown this to be the case with Cormorants ringed in Holland, and Mr. R. M. Lockley has proved it to be the case with the Manx Shearwater (*Puffinus p. puffinus*). Secondly there may be a greater mortality in early life amongst ringed Cormorants than with others, because as a result of being ringed they may leave the nest prematurely and therefore get a poorer start in life.



MAP 2. SHOWING PLACES OF RECOVERY OUTSIDE THE BRITISH ISLES OF CORMORANTS RINGED AT MOCHRUM.

It is noteworthy that very few marked birds have been recovered after the fifth year, which suggests that a proportion of the rings do become worn and drop off. The Cormorant is known to be long-lived, and on my enquiring how long they lived in the London Zoo, Dr. G. M. Vevers informed me, "the average life of a Cormorant in the Zoological Gardens is from 10 to 12

years. There is a record of one living to 23 years but that was not in this Zoo. On analogy with other fish-eating birds, I would say that 20 years would be the average life of a Cormorant." Harting records one, which belonged to Captain Salvin and was trained for fishing, which was breeding at 19½ years old. The oldest ringed one recovered was 18 years and 3 months and its ring was described as "worn but legible", which, although it proves the rings can last that time, nevertheless suggests that some would become so worn as to drop off before then.

When one examines the migrations of Mochrum Cormorants, it appears that they disperse all round the British Isles except north of the Caledonian Canal. There is no observable difference between the movements of first year birds and others as in the case of the Gannet (*Sula bassana*), in which yearlings tend to move further to the south than the rest.

In Map I all the recoveries in the British Isles are marked with the exception of 20 in the Solway area which have been omitted for the sake of clarity in the map.

It seems clear that some birds must fly across Scotland, but whether they do this from the Solway to Berwick or from the Clyde to Forth is impossible to say at present. My own view is that it is by the latter route.

Map II shows the places of recovery of those got outside the British Isles. Because of lack of space 13 recoveries from the Brittany Peninsula are not marked, but all those from Spain and Portugal are included.

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THE LARDER OF THE RED-BACKED SHRIKE

BY

J. H. OWEN.

BECAUSE of the habit of pinning up spare food on thorns the Red-backed Shrike (*Lanius c. collurio*) was far better known in Essex, when I lived there, as the Larder Bird. Unfortunately it has become so scarce there that few of the present generation have any knowledge of the bird. This habit of impaling food that is not needed at the moment must be instinctive. I think that all individuals do it provided they do not need the catch when it is taken. Even birds on passage through a district will do it. I have known them pin up small birds and mammals as well as insects while on passage. Of course all these are wasted and dry up or rot.

When birds are settled down for nesting I think all of them would have larders if they caught more food than they could eat. The male bird, in my experience, is much more given to lardering than the hen. I have, however, seen the hen put stuff in the larder. On one occasion a hawk took the cock bird. The hen not only finished the nestling period herself, but kept a larder going. I should never have thought of looking at the place where she had it, had I not seen her taking an insect to it. It was on thorns at the base of a huge spreading hawthorn bush. Curiously enough, at another nest, where the hen had died on the nest, the cock finished the rearing of the nestlings and had a similar larder. I found this larder by a similar bit of luck, but it was a much better larder, as it contained the remains of a Field Vole (*Microtus agrestis*) in addition to insects. It was even more interesting than usual, as the mammal was carved away from the tail up instead of from the head down. At this nest I had a hide against a huge hawthorn bush, on the side next to the nest, which was some fifteen yards away: the hide was made of branches, and from it I could see practically everything that took place at the nest. One of the larders was on the other side of this big bush; three larders were used for this nest, the third being only two or three yards from the nest. I have seen as many as six larders used by one pair. Usually they are not far from the nest, but I have seen one in use quite 150 yards away. One does not often find so many larders, but, if one does, my experience is that the one up-wind from the nest is most likely to be used while the wind is in that quarter. In Essex I found larders much harder to find than in Shropshire. I think shrikes prefer to nest in one of a number of isolated bushes, provided one of them is suitable, rather than in a hedge. Clumps of bushes were not so common in Essex as on the Shropshire border, although some of the old gravel-pits were extremely suitable in this respect. Hedgerow larders are usually not at all easy to find. Hawthorn or blackthorn are the favourite bushes,

especially a part that has been killed by fire or some other means. I have also found the large thorns on rough briars and brambles used frequently, and occasionally even barbed wire. I have also seen a bundle of thorns pushed in to stop a gap in a hedge used by several pairs. It is rather curious that one of the best and most continuous larders I have seen in Shropshire was in such a place and on the side of a much-used footpath a few yards from the nest. The best larder I saw in Essex was on a partly dead bush, practically in Felstead Station, at the end of a hedge where a branch to a beet factory leaves the line. The nest was a few yards down a hedge, going towards the factory, at right angles to the railway. This larder had usually got a lot of humble-bees (*Bombus*) in it and nearly always a small bird and one or more House-Mice (*Mus domesticus*). These mice must have been caught outside Messrs. Hasler & Co.'s store in the station yard. The House-Mouse is quite a rarity in a larder.

Queen humble-bees figure prominently in the larders. The birds usually devour workers and males, carder bees and Honey-Bees (*Apis*) as they catch them, which is unfortunately far too often. Sometimes wasps (*Vespa*) are taken, and the remains found in pellets, but it is very rarely that one sees a wasp in a larder. Dor-beetles (*Geotrupes*) and cockchafers (*Melolontha*) are often seen pinned up. Usually insects are pinned through the underside of the thorax, back uppermost, but now and then one finds one pinned sideways or through the back. It is quite a common thing to find the victim alive. In Essex I found underwing moths (*Triphæna*) fairly often, but in Shropshire ermines (*Spilosoma*) and a few other species, but none regularly. The larders were more likely to contain food at night than in the morning. In cold, misty mornings a larder that was well-stocked at night was quite likely to be empty. If food was plentiful the contents of the larder might rot, dry up, be taken by wasps, or blown by flies according to the nature of the item. Some birds would just use the abdomens of moths and beetles, and quite a lot of remains could be gathered under a larder. I never saw butterflies used. Some birds hated to see a larder inspected and would either transfer it or desert it immediately, usually the former if it contained a mammal or bird. The birds caught were usually young not long out of the nest: Willow-Wrens (*Phylloscopus trochilus*) and Whitethroats (*Sylvia communis*) were most frequently caught. The shrikes also take small birds out of nests—Willow-Wrens, Linnets (*Carduelis cannabina*), Pipits (*Anthus*), etc. Often these nestlings were only a day or two old. In Essex I once saw a small frog (*Rana*) in the larder. On the border I have twice seen Common Lizards (*Lacerta vivipara*) and they were completely eaten. The usual mammal was the Field-Vole, but the Wood-Mouse (*Apodemus sylvaticus*) also appeared and occasionally a Bank-Vole (*Clethrionomys*). Common Shrews and Lesser Shrews (*Sorex araneus* and *minutus*) often appeared.

These may have been picked up dead by the shrikes, as they will eat carrion provided it is fresh: dead shrews may often be seen lying about. Twice I have seen large Earthworms (*Lumbricus*) in larders, once in Essex and once in Montgomeryshire. On each occasion the worms have been carved into bits about $1\frac{1}{4}$ inches long.

The larder is also used for other purposes. Very often the old birds will carry sacs of excrement from the nest and place them on the tips of thorns in a regular larder. The same may be said of pellets thrown up by the young. If I want to examine some pellets I always look under the larders. Of course, some of the pellets found there may be from the old birds, for above a larder is often a favourite look-out perch, especially for the cock. Another very curious thing is that the shells of the hatched eggs are often found pinned up in a larder. I did not realize this when I lived in Essex. There I only saw a shell in a larder once, although I had seen shells underneath a larder. I thought that the bird had merely gone to the larder from the nest and dropped the shells there. However, in Shropshire in 1939 I soon had reasons to think otherwise. In 1944 some of the shells from four nests quite close together were put in the larders. At another nest all six shells were pinned up. Shrikes do not as a rule worry about unhatched eggs in the nest. On one occasion there were two such eggs in a nest for a day or two. Then one disappeared and I thought at first that it had hatched and the young one had died. Then I found the egg cracked, but otherwise intact, in the larder. The other was in the nest when the young left it. I used to experiment by putting dead small birds and mammals, that I had picked up, in the larders and then hiding to watch proceedings. I have never yet succeeded in pinning one up to the satisfaction of the shrikes. I have many times watched them, usually the cock, pull these bodies free and fix them elsewhere. On one occasion I went to see if the young had left the nest, as I expected, in the morning. They were in it the previous evening. They had left, but the last hatched nestling was dead in the nest—overlaid. I took the body and put it in the larder and then lay down in hiding a few yards away. Almost immediately the hen came and tried to carve it up, but the position was wrong. She gave it up and the cock came and pulled it free and shifted it. Then both started to pull bits off it and demolished the whole carcass in a very few minutes.

The larder may be started even before the nest site is chosen. I have known one maintained until a fortnight after the young had left the nest.

I have never seen a complete Blackbird (*Turdus merula*) or Song-Thrush (*T. ericetorum*) in a larder. I have, however, often seen "joints" of young birds of these species pinned up, usually picked very clean. Generally I think the hen fetched food from the larder much more than the cock, although he alone may

provision it. Both may use it, and at a frantic rate, to cram the young before a thunderstorm (for instance) or if they have been kept away from the nest for some time. Another occasion when it is used is before the birds go away for a spell to feed themselves.

When birds had lost a nest I used often to throw down material to encourage and help them to build a "repeat" nest. Often this material would be used at once—wool, feathers, parts of used nests of birds such as Willow-Wren. On one occasion a cock seized a piece of wool almost as soon as I had dropped it. I watched him shake it, and, as it were, weigh it. It was not satisfactory. Then, to my astonishment, instead of dropping it, he hung it on a thorn about two feet up a large hawthorn bush. There it remained for some weeks. It is curious that, even at the nest where most flesh was used, I never found bones of the victims in the pellets. I once saw the trunk, without legs or wings, of a small bird absolutely stripped of flesh in a larder. Normally I think very little bone or feather is given to the young. Stale birds or mammals are generally removed from the larder and probably dropped at some distance from it. I judge this from their sudden disappearance and not from ocular proof. Often if a larder contains putrefying birds or mammals it will be deserted. Some birds have very curious ways. Often a wing snapped from a moth will be very carefully placed along a twig and supported by a jutting thorn. There it will remain until a shake of the bush upsets it. I have also frequently seen a cleanly picked bone, or the tarsus and foot, treated in this way.

BRITISH RECOVERIES OF BIRDS RINGED ABROAD

COMMUNICATED BY

E. P. LEACH.

(Concluded from page 178).

TEAL (*Anas c. crecca*).

RINGED AS YOUNG OR ADULT IN BREEDING-SEASON.

		<i>Ringed.</i>		<i>Recovered.</i>	
<i>Rk.</i>	5.3037	Myvatn, Iceland	12.7.46	Killough (Down)	17.2.47
<i>Rk.</i>	5.3050	Ditto	29.7.46	Lough Ree (Westmeath)	21.11.46
<i>Rk.</i>	5.2213	Ditto	10.8.41	Blue Ball (King's Co.)	1.12.45
<i>Rk.</i>	5.3013	Ditto Ad.	27.6.46	R. Shannon (Roscommon)	23.2.47

RINGED FROM DECOYS.

		<i>Ringed.</i>		<i>Recovered.</i>	
<i>L.</i>	179438	Piaam (Friesland), Holland	24.9.38	Beaully (Inverness)	21.8.39
<i>L.</i>	179428	Ditto	24.9.38	Coldstream (Berwick)	20.11.39
<i>L.</i>	172557	Ditto	24.9.38	Dundrennan (Kirkcudbr.)	20.1.40
<i>L.</i>	185184	Ditto	23.8.41	Sloothby (Lincs.)	5.12.45
<i>L.</i>	171703	Ditto	21.8.37	Queenborough (Kent)	11.10.39
<i>L.</i>	171456	Ditto	11.9.37	Pulborough (Sussex)	24.12.39
<i>L.</i>	182593	Ditto	9.8.44	Otterbourne (Hants.)	9.9.44
<i>L.</i>	172452	Ditto	8.12.37	Brockenhurst (Hants.)	22.1.40
<i>L.</i>	185825	Ditto	4.10.39	Barnstaple (Devon)	2.2.40
<i>L.</i>	182711	Ditto	30.8.46	Haverfordwest (Pembs.)	—.2.47
<i>L.</i>	185810	Ditto	4.10.39	Pembrokeshire	27.1.40
<i>B.</i>	E4958	Bruges, West Flanders	—.12.45	Padstow (Cornwall)	2.1.47

WIGEON (*Anas penelope*).

		<i>Ringed.</i>		<i>Recovered.</i>	
<i>Private Mark.</i>		Pechora Dist., N. Russia	17.8.40	Fambridge (Essex)	1.2.41
<i>Rk.</i>	4.1704	Myvatn, Iceland Ad.	16.6.41	Westray, Orkney	1.2.46

RINGED PROBABLY DURING MOULT.

		<i>Ringed.</i>		<i>Recovered.</i>	
<i>M.</i>	E76489	Volga Delta, Astrakhan	11.8.41	North Uist, O. Hebrides	—.1.44
<i>M.</i>	E81240	Ditto	7.8.44	Ingestre, Stafford	11.12.44

SHOVELER (*Spatula clypeata*).

RINGED PROBABLY DURING MOULT.

		<i>Ringed.</i>		<i>Recovered.</i>	
<i>M.</i>	E76502	Volga Delta, Astrakhan	27.7.44	Belturbet (Cavan)	22.11.46

TUFTED DUCK (*Aythya fuligula*).

RINGED IN BREEDING-SEASON.

	<i>Ringed.</i>		<i>Recovered.</i>	
Rk.	4.2442	Myvatn, Iceland	1.7.46	Lochgelly (Fife) —.3.47
Rk.	4.2474	Ditto, ad.	14.7.46	R. Clare (Galway) 26.12.46

GOOSANDER (*Mergus m. merganser*).

RINGED IN BREEDING-SEASON.

	<i>Ringed.</i>		<i>Recovered.</i>	
St.	T8446	Jämtland, Sweden, ad.	1.7.45	Amulree (Perth) 22.12.45
St.	T10048	Ditto	21.7.45	Stokc-by-Nayland (Suffolk) 28.2.47

SOUTHERN CORMORANT (*Phalacrocorax carbo sinensis*).

	<i>Ringed.</i>		<i>Recovered.</i>	
B.	K3622	Bruges, Belgium, young	19.6.39	Hengistbury Head (Hants.) —.6.45

STOCK-DOVE (*Columba œnas*).

	<i>Ringed.</i>		<i>Recovered.</i>	
L.	157653	Utrecht, Holland, young	26.6.36	Bletchley (Bucks) —.2.40

OYSTER-CATCHER (*Hæmatopus ostralegus*).

RINGED ABROAD AS YOUNG WITH BRITISH RINGS.

	<i>Ringed.</i>		<i>Recovered.</i>	
	324375	Færoes	14.6.45	Leven Estuary (N. Lancs.) 15.1.47
	324599	Ditto	29.6.45	Greencastle (Antrim) 4.10.45
	324407	Ditto	2.6.43	Greencastle (Down) 5.1.46
	324556	Ditto	8.7.45	Portavogie (Down) 1.1.46
	324286	Ditto	1.6.44	Hollywood (Down) 15.12.44
	324447	Ditto	30.6.43	Bundoran (Donegal) —.11.44

LAPWING (*Vanellus vanellus*).

RINGED AS YOUNG.

	<i>Ringed.</i>		<i>Recovered.</i>	
O.	40085	Stavanger, Norway	23.5.46	Grimsby (Lincs.) 11.11.46
Stav.	60412	Jæren, S. Norway	19.5.36	Seaton Delaval (Northumb.) 5.11.39
Stav.	62613	Ditto	1.6.45	Whitedale (E. Yorks.) 1.9.45
Stav.	61021	Ditto	12.6.42	Spalding (Lincs.) —.9.43
Stav.	62628	Ditto	3.6.45	Bangor (Caernarvon) 2.2.46
Stav.	61071	Ditto	26.5.41	Tresco, Scilly Is. —.2.45
Stav.	62381	Ditto	17.6.44	Terenure (Dublin) 4.1.47
Stav.	62627	Ditto	3.6.45	Fethard (Tipperary) 8.3.47
Stav.	61737	Ditto	3.6.43	Pallaskenry (Limerick) 10.3.47
O.	4967	Ditto	3.6.45	Campile (Wexford) 20.1.46
H.	6082463	Ditto	14.6.38	Ennis (Clare) 21.1.46

			<i>Ringed.</i>	<i>Recovered.</i>
<i>Stav.</i>	61847	Vestfold, S. Norway	23.5.44	Somercotes (Lincs.) 8.12.45
<i>Stav.</i>	61888	Ditto	13.6.44	Shankill (Dublin) 14.1.45
<i>St.</i>	Y39287	Göteborg, Sweden	3.6.45	Blessington (Wicklow) 28.2.47
<i>St.</i>	X12491	Västergötland, Sweden	6.6.38	Scarborough (Yorks.) 23.11.38
<i>St.</i>	X2063	Östergötland, Sweden	8.6.38	Lincolnshire —.11.38
<i>St.</i>	Y13909	Skane, Sweden	23.6.38	Plumpton (Sussex) 16.1.39
<i>St.</i>	Y33616	Ditto	17.6.42	Clontarf (Dublin) 28.1.46
<i>St.</i>	X5999	Ditto	20.5.45	Burkestown (Wexford) 5.3.47
<i>G.</i>	C48724	Öland, Sweden	14.6.45	Thornbury (Devon) —.1.46
<i>C.</i>	Z23565	Jylland, Denmark	20.6.39	Whitby (Yorks.) 25.2.40
<i>C.</i>	RK1838	Ditto	5.6.32	Skegness (Lincs.) 6.2.34
<i>C.</i>	RK1926	Ditto	27.5.33	Boston (Lincs.) 8.1.40
<i>C.</i>	RK7108	Ditto	19.5.35	Co. Louth 21.2.37
<i>C.</i>	632576	Ditto	22.5.45	Hopton (Suffolk) 2.2.46
<i>Sk.</i>	T24365	Ditto	3.6.41	Spalding (Lincs.) —.9.43
<i>Sk.</i>	S20946	Sjælland, Denmark	17.5.43	Ditto —.9.43
<i>H.</i>	582012	Westphalia, Germany	15.5.36	Chichester (Sussex) 15.11.40
<i>L.</i>	174430	Noord Holland	4.6.39	Manningtree (Essex) winter 1942/43
<i>L.</i>	195241	Zuid Holland	5.6.46	Spalding (Lincs.) 14.11.46

RINGED AS FULL-GROWN.

			<i>Ringed.</i>	<i>Recovered.</i>
<i>L.</i>	181667	Zuid Holland	19.10.40	Ely (Cambs.) 11.4.43
<i>L.</i>	190352	Ditto	25.10.42	Northolt (Middx.) 26.11.43

KNOT (*Calidris c. canutus*).

RINGED AS MIGRANTS.

			<i>Ringed.</i>	<i>Recovered.</i>
<i>Stav.</i>	76819	Jæren, Norway	12.9.46	Cleethorpes (Lincs.) 14.1.47
<i>Stav.</i>	60254	Ditto	28.8.39	Dunany (Louth) 15.11.45

DUNLIN (*Calidris alpina*).

RINGED AS MIGRANTS.

			<i>Ringed.</i>	<i>Recovered.</i>
<i>Stav.</i>	95004	Jæren, Norway	30.9.46	Findhorn (Moray) 20.11.46
<i>Stav.</i>	76865	Ditto	14.9.46	Orfordness (Suffolk) 11.2.47
<i>Stav.</i>	83115	Ditto	4.9.39	Exmouth (Devon) 14.10.39
<i>St.</i>	ZA8579	Öland, Sweden	11.9.37	Holbeach (Lincs.) 28.12.38
<i>St.</i>	ZO588	Ditto	3.9.38	Poole (Dorset) —.1.39
<i>St.</i>	ZO682	Ditto	5.9.38	Jersey 27.12.38
<i>St.</i>	ZO1559	Ditto	30.9.38	Ditto 27.12.38

ICELAND REDSHANK (*Tringa totanus robusta*).

RINGED AS YOUNG.

*Ringed.**Recovered.*

<i>Rk.</i>	6.1335	Myvatn, Iceland	27.6.36	Flotta, Orkney	—4.40
<i>Sk.</i>	D12179	Akureyri, Iceland	11.7.34	River Ythan (Aberdeen)	24.8.44

BAR-TAILED GODWIT (*Limosa l. lapponica*).

RINGED AS MIGRANTS.

*Ringed.**Recovered.*

<i>Stav.</i>	60638	Jæren, Norway	24.9.39	Chichester (Sussex)	—11.39
<i>Stav.</i>	50702	Ditto	7.9.37	Langstone Harbour (Hants.)	11.2.39

CURLEW (*Numenius a. arquata*).

RINGED AS YOUNG.

*Ringed.**Recovered.*

<i>St.</i>	T2632	Dalarne, Sweden	26.5.38	Stornoway, O. Hebrides	1.4.39
<i>St.</i>	T4501	Ditto	10.6.39	Ballabeg, I. of Man	20.1.40
<i>G.</i>	D17164	Ditto	29.5.46	Ballina (Mayo)	—10.46
<i>G.</i>	D15641	Ditto	12.6.45	Drogheda (Louth)	—2.47
<i>G.</i>	D.18422	Örebro, Sweden	1.7.42	Crosby-on-Eden (Cumb.)	6.1.45
<i>St.</i>	TA6307	Västergötland, Sweden	13.6.46	Kings Lynn (Norfolk)	7.9.46
<i>G.</i>	D731	Öland, Sweden	13.6.43	River Eden (Cumb.)	23.12.44
<i>G.</i>	D733	Ditto	13.6.43	Patrington (Yorks.)	6.11.45
<i>St.</i>	TA654	Ditto	15.6.42	Killyleagh (Down)	30.1.46
<i>L.</i>	165028	Texel, Holland	11.6.38	Exeter (Devon)	25.1.40
<i>L.</i>	87954	Ditto	19.5.31	Portmarnock (Dublin)	25.1.39
<i>L.</i>	168811	North Brabant, Holland	17.5.42	Lincoln	10.11.44

WHIMBREL (*Numenius ph. phæopus*).*Ringed.**Recovered.*

<i>Rk.</i>	5.73	North Iceland, young	3.7.32	Barvas, I. of Lewis	—8.35
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COMMON SNIPE (*Capella g. gallinago*).*Ringed.**Recovered.*

<i>IB.</i>	7C3359	Antwerp, Belgium, young	7.7.46	Port Dinorwic (Caerns.)	30.8.46
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WOODCOCK (*Scolopax rusticola*).

RINGED AS YOUNG.

*Ringed.**Recovered.*

<i>St.</i>	Y39160	Uppland, Sweden	26.5.44	Cwmtwrch (Brecon)	11.11.44
<i>St.</i>	X2264	Dalarne, Sweden	10.8.38	Glendaruel (Argyll)	3.1.39

RINGED AS MIGRANTS.

		<i>Ringed.</i>	<i>Recovered.</i>
H.	595186	Heligoland	15.3.39 Kinloss (Moray) 24.3.40
H.	5013154	Ditto	28.3.44 Egton Bridge (Yorks.) 31.10.44
H.	5000259	Ditto	18.11.39 Letterkenny (Donegal) —.2.41
H.	594628	Ditto	11.4.40 L. Iron (Westmeath) 29.12.40
L.	192429	Gaasterland(Friesland), Holland	31.10.43 Farway (Devon) 10.11.44

SANDWICH TERN (*Sterna s. sandvicensis*).

		<i>Ringed.</i>	<i>Recovered.</i>
H.	6076973	Norderoog, N. Fris. Is., young	15.6.40 Horsham (Sussex) 19.9.45

HERRING-GULL (*Larus argentatus*).

RINGED AS YOUNG.			
Stav.	808	Lofoten Is., Norway	16.8.46 Breydon Water (Norfolk) —.11.46
C.	RK6529	Jylland, Denmark	15.6.33 Hartlepool (Durham) 8.9.33

SCANDINAVIAN LESSER BLACK-BACKED GULL (*Larus f. fuscus*).

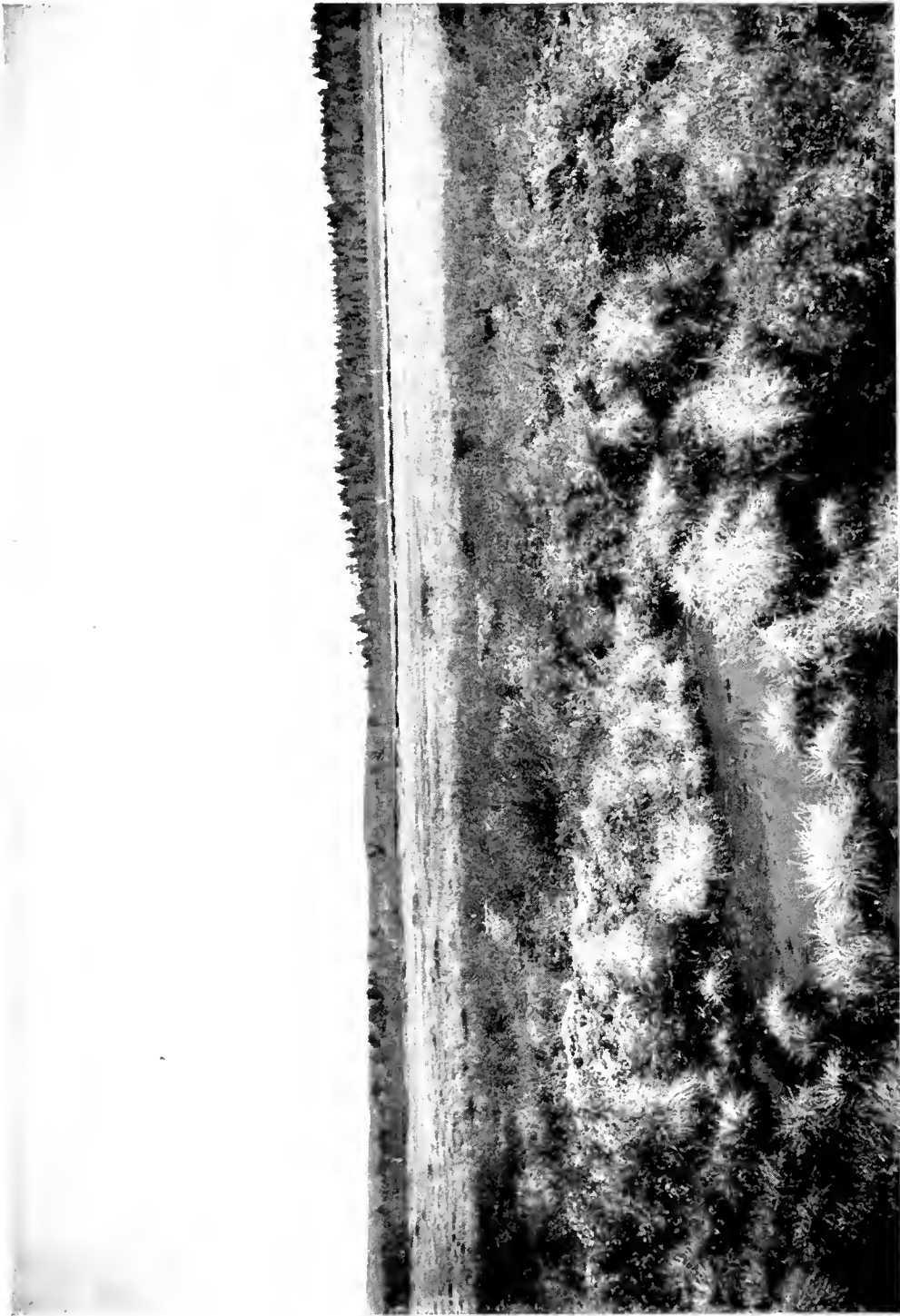
RINGED AS YOUNG.			
Stav.	30216	Stavanger, Norway	7.7.36 Burton-on-Trent (Staffs.) 16.5.39
G.	D16518	Göteborg, Sweden	10.7.45 Breydon Water (Norfolk) 6.9.46
G.	C50431	Öland, Sweden	28.6.46 Whitstable (Kent) 10.4.47

GREAT BLACK-BACKED GULL (*Larus marinus*).

		<i>Ringed.</i>	<i>Recovered.</i>
Stav.	32043	Jæren, S. Norway young	27.8.45 Grimsby(Lincs.) 11.12.45

MOORHEN (*Gallinula ch. chloropus*).

RINGED AS MIGRANT.			
L.	54615	Terschelling Lightship	10.12.34 Sandwick, Orkney 22.5.39



BAR-TAILED GODWIT (*Limosa l. lapponica*).
BREEDING GROUND, SYD VARANGER, N. NORWAY.
(Photographed by Paul Rosenius).



BAR-TAILED GODWIT (*Limosa l. lapponica*).
NEST AND EGGS. SYD VARANGER, N. NORWAY, JUNE 11TH, 1932.
(Photos. supplied by Paul Pennington)



BAR-TAILED GODWIT (*Limosa l. lapponica*).
NEST AND EGGS, SYD VARANGER, N. NORWAY, JUNE 11TH, 1932.
(Photographed by Paul Rosenius).



BAR-TAILED GODWIT (*Limosa l. lapponica*).
MALE ON BREEDING-GROUND, SYD VARANGER, N. NORWAY, JUNE, 1932.
(Photographed by Paul Rosenius).



BAR-TAILED GODWIT (*Limosa l. lapponica*).
MALE ON NEST, SYD VARANGER, N. NORWAY, JUNE 11TH, 1932.
(Photographed by Paul Rosenius).

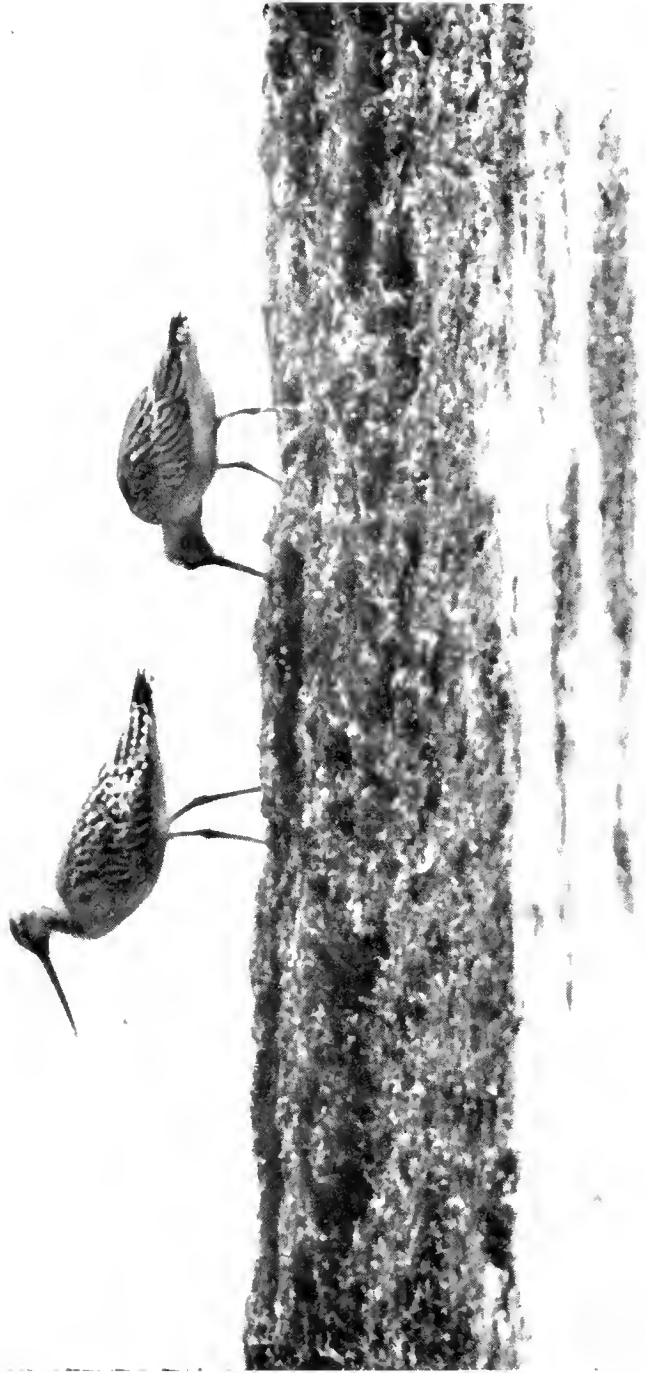


BAR-TAILED GODWIT (*Limosa l. lapponica*).

UPPER.—MALE ON NEST.

LOWER.—MALE ON BREEDING-GROUND, SVD VARANGER, N. NORWAY, JUNE, 1932.

(Photographed by Paul Rosenius).



BAR-TAILED GODWIT (*Limosa l. lapponica*).
JUVENILES ON SHORE, WEST COAST OF SWEDEN, SEPTEMBER 15TH, 1941.
(Photographed by Olof Swanberg).



BAR-TAILED GODWIT (*Limosa l. lapponica*).
FIVE JUVENILES WAITING FOR TURN OF THE TIDE, HULBRE ISLAND, CHESHIRE.
With Duntlins, two Redshanks, one Knot and one Sanderling.
(Photographed by Eric Hosking)

STUDIES OF SOME SPECIES RARELY
PHOTOGRAPHED.

XV. THE BAR-TAILED GODWIT.

Photographed by PAUL ROSENIUS, OLOF SWANBERG and
ERIC HOSKING.

(Plates 23-30).

It is safe to claim that the series of photographs of the Bar-tailed Godwit (*Limosa l. lapponica*) which we are now able to publish is quite unique, showing the birds, as it does, on their remote breeding-ground in Lapland, with nest and eggs, and in the more familiar—though not easily photographed—rôle of visitors to the more southerly coasts of Europe and the British Isles on passage and in winter.

Mr. Rosenius is to the best of our belief the only ornithologist who has photographed the Bar-tailed Godwit on the breeding-ground. His photographs were taken in June, 1932, in the valley of the Pasvik River in Syd Varanger, Norwegian Lapland, in a district where the writer has also had the good fortune to observe this species as a breeder. Plate 23 shows a typical breeding-area, a wide tract of peat-moss and swamp bordered by woods and broken up to a limited extent in parts by an occasional piece of raised ground with scattered trees. Here, like many other northern waders when breeding and in rather surprising contrast to their habits at other times of year, the birds pitch freely on trees and are apt both to follow and to come and meet an intruder a long way from the position of the actual eggs or young, using a variety of calls which will be found summarized in *The Handbook*. According to Dr. H. M. S. Blair nests in this area are generally "on the narrow ridges of drier peat intersecting the broad expanses of soft ooze which are the favourite haunts of this wader". In the breeding-season the males are generally conspicuously more rufous than the females, especially on the under-parts, so that the sexes are easily distinguished. Both sexes incubate, but the males take the larger share and tend to be more demonstrative than females.

Mr. Swanberg's photograph (plate 29) shows two juveniles feeding on a bank of rotten seaweed on the Swedish west coast in September. Mr. Hosking's striking group was taken on Hilbre Island, Cheshire.

B.W.T.

NOTES.

PRESUMED BIGAMY OF ROOK.

DURING the spring of 1947 I saw what certainly appeared to be bigamous behaviour by a male Rook (*Corvus f. frugilegus*) Unfortunately, the observations were rather disjointed, a continuous watch not being possible.

On March 14th a well-advanced nest was seen in an oak-tree at Lymptone, Devon, and nearly a mile from the nearest rookery. Even on this date a third bird appeared to be interested in the nesting activities. On the 22nd egg-laying had probably at least started, for one bird was in the nest a good deal. On subsequent dates the male, when he brought food to the sitting bird, was followed to the nest by a third bird, which was attacked by the female. On April 4th one bird was in the nest when its mate arrived and they changed places (suggesting, incidentally, that the male Rook, at least occasionally, broods the eggs). The third bird had been perched in a tree about fifty yards away. It flew to the side of the bird that had left the nest and quivered its wings. In the next few minutes it was twice attacked by the sitting bird, which was no doubt the female of the pair, and although the male once showed a little resentment at the odd bird's presence, it refused to leave, only flying away with the male when he left.

On April 11th I found a second nest had been started a few feet from the first, and the third bird was subsequently seen taking material to it. Whenever the male brought food to the sitting female the third bird would stand on its nest, facing the other and calling and fluttering its wings. This became a regular habit and there was no doubt the third bird was a female. On one occasion a bird, almost certainly the male, left his perch by the first nest and went to the second, he and the female of that nest going on to it. These two birds now and then arrived at the tree together, going to their respective nests, and once both took material to the second nest.

The young birds appeared to be hatched in the first nest on April 14th. The male parent left the nest on one occasion and was followed by the second female. They returned together, both going to the second nest. He went into the cup, where the female mounted his back in reversed coition. The positions were then reversed, though she slipped out from under him too quickly, I thought, for coition actually to have taken place. Later both flew to the second nest with material, but something alarmed them before the male could leave his at the nest. He dropped it as he left the tree and on returning went to the first nest. On another occasion he was pecking at food under his foot in a neighbouring tree when the second female left her nest and went to him. He dropped part of the food and she went to the ground to retrieve it, while he took the rest to the first nest and fed the young and the female.

On April 18th the second female was incubating. The next day

the male was again pecking at food in the tree a short way off when she left her nest and flew to him. This time she took part of the food, though in the confusion of fluttering wings I could not be sure whether the male gave it to her or she snatched it from him. He took the rest to the first nest.

On the 21st the second nest was destroyed by a gale and the owner resumed her habit of following the male, this continuing up to at least the 28th. On May 1st she had apparently found another mate, for two birds were building a fresh nest while the original pair was busy with its family. The new nest was also destroyed on the 5th and the second pair of birds left for good.

R. G. ADAMS.

RECENT accounts of the behaviour of Rooks (*Corvus f. frugilegus*) at the nest remind me of a remarkable association noted in April, 1946. The rookery was a small lane-side one near Taunton, Somerset, where I was watching the feeding of incubating females, which took place exactly as described by C. M. Ogilvie (*antea*, Vol. xl, p. 136).

One of the trees of this rookery, across the lane and some 20 yards from the others, contained three nests, two near the top centre of the tree, and one (not involved in this observation) on the far side, so allowing no possibility of confusion. Both hens of the two nests concerned were seen simultaneously giving the characteristic greeting that signifies the approach of the cock, but only one cock could be seen flying in. This bird flew over the first and lower nest, and settled at the upper, where wing shivering and the peculiar muffled cawing of the hen, noted by C. M. Ogilvie, accompanied the feeding. Meanwhile the hen on the lower nest had turned completely round to face the upper nest, and was continuing the "approach-greeting." The cock left the upper nest immediately after feeding the hen, hopped down and across the tree some 6 feet to the lower nest and fed the second hen, the feeding behaviour being exactly repeated. On the two occasions when I passed the rookery, on the mornings of April 16th and 21st, several visits of the male were observed at approximately quarter hour intervals, and always the two nests were visited in the same order and both females fed.

This association, quite different from those described in letters from B. M. A. Chappell and F. Dean (*antea*, Vol. xxxix, p. 352 and Vol. xl, p. 191) strongly suggests a case of bigamy. It is surprising that the cock should have "remembered" each time to save some food for the second hen.

The same rookery was visited again in 1947, but the tree contained two normal nests and no similar case has been noted in other rookeries.

R. J. LYE.

COURTSHIP FEEDING OF HAWFINCH.

As the courtship feeding of the Hawfinch (*Coccothraustes c. coccothraustes*) appears to be rarely observed it may be of interest

to record that I witnessed this on May 6th, 1946, at Lymptone, Devon. A sharp "zeek-eek", persistently repeated, drew my attention to a pair of Hawfinches in a wood. While the female uttered the note the male was several yards from her searching among the leaves of an oak-tree. She flew to him and perched, still calling, with her wings held off her body and tail spread. Holding green caterpillars in his beak the male went to her, and she, with beak wide open and still repeating the note, but more quickly, crouched and swayed her body from side to side; the male then put the food in her beak. R. G. ADAMS.

[Though the male regularly feeds the female on the nest, courtship-feeding away from the nest has very seldom been recorded. It was observed by H. Dathe in Germany (*Beitr. Fortpfl.-biol. Vög.*, 1940, p. 30).—EDS.]

THE RACIAL STATUS OF CONTINENTAL CHAFFINCHES OBTAINED IN LANCASHIRE, WITH SOME FIELD OBSERVATIONS.

IN *British Birds*, Vol. xl, 1947, p. 308, details are given of the first Lancashire record of the Continental race of Chaffinch (*Fringilla c. cælebs*). Further examples of wintering birds taken in the Burnley district in the winter of 1946-1947 and the late autumn of 1947 have shown that it is of regular occurrence, arriving generally during the period 3rd week October—2nd week November.

These specimens have been critically examined in the light of Dr. J. M. Harrison's recent and valuable contribution on some of the races comprising the western Palæarctic *Fringilla cælebs* group (vide *Ibis*, 1947, pp. 411-418), in which the diagnostic characters of the two major racial divisions of the Continental bird, viz., *Fringilla cælebs cælebs* Linnæus, 1758: Sweden, and *Fringilla cælebs hortensis* Brehm, 1831: Middle Germany, are accurately defined. On the data given by Harrison it is evident that all the Lancashire examples of Continental *F. cælebs* taken to date are of the race *F. cælebs hortensis*, distinguishable on account of the vinaceous, in some almost violaceous, tones of the ventral surfaces, which parts in toptotypical *F. c. cælebs* are browner and darker in colour. My identification of some of these birds was kindly confirmed by Dr. P. A. Hens, Netherlands, an acknowledged expert on the species, when he worked over my series in June, 1947.

Additional samples of wintering Chaffinches are now clearly required in order to ascertain the numerical status of the type form which, judging by available information on its distribution as a winter visitor to these islands, must be expected to occur in the same areas as *F. c. hortensis*.

These findings, based as they are on specimens collected in Lancashire, are perhaps true of much of western Great Britain. Certainly, my notes and collections from south-west Scotland

show that *F. c. hortensis* is the dominant Continental race wintering in this region, and the arrival dates correspond remarkably closely to those for Lancashire.

F. c. hortensis is not at present admitted to the British List, all Continental Chaffinches being listed as *F. c. cœlebs*, but in view of Harrison's work (*loc. cit.*) both *F. c. cœlebs* and *F. c. hortensis* must now be recognized as occurring in the British Isles.

The feeding and general habits of the Continental birds on their arrival are distinctive and enable them to be separated in the field from the British race, *F. c. gengleri*. At this season they are very largely arboreal feeders, repairing freely to wooded districts to feed in trees, exhibiting a pronounced predilection for sycamores, oaks, and beeches. They appear to be almost exclusively insectivorous at this period, and their comparative silence is perhaps worthy of mention. Furthermore, these Continental birds generally exude a pungent odour, reminiscent of decaying leaves, which is retained by a skin for several weeks. Species of Paridæ have a closely similar odour in the autumn, which seems to be essentially connected with an arboreal existence at this period of the year.

P. A. CLANCEY.

[At their meeting on January 21st, 1948, the British Ornithologists' Union List Committee agreed to recognize *Fringilla cœlebs hortensis* and to accept this race to the British List.—EDS.]

HOUSE-SPARROW ROBBING MISTLE-THRUSH OF WORM.

WITH reference to the note on Starlings robbing Blackbirds of worms (*antea*, p. 340), a similar observation may be of interest although it concerns different species.

On June 23rd, 1947, a Mistle-Thrush (*Turdus v. viscivorus*) was seen feeding on a miniature golf course at Ramsgate, Kent; it had just pulled out a worm when a House-Sparrow (*Passer d. domesticus*) flew down from a hedge near by, seized the worm in the Mistle-Thrush's bill and after a brief tug-of-war secured and flew off with it. The Mistle-Thrush did not pursue the sparrow.

L. LLOYD-EVANS.

BLUE-HEADED WAGTAIL BREEDING IN ESSEX.

THE presence of a male, female and several young Blue-headed Wagtails (*Motacilla f. flava*) at a locality in Essex was reported to me by Mr. Reginald W. Arthur, and as I was unable to visit the area he has kindly sent me the following particulars.

They were first seen on June 13th, 1947, at Seawick Estate, St. Osyth, when the young were still being fed by both parents. They were still short-tailed and stumpy-looking, although able to move about. After approximately seven days the birds were not seen again.

The following is a description of the male bird: head slate-blue, darker through eye, with white stripes above and below eye; under-parts bright yellow; upper-parts greenish-brown; wings with yellowish half margins to feathers. The female and young were rather similar to Yellow Wagtails (*M. flava flavissima*).

JOHN N. MEAD.

PIED WAGTAIL FEEDING YOUNG ON FISH.

AT Boston Spa, Yorks., on June 23rd, 1946, a pair of Pied Wagtails (*Motacilla alba yarrellii*) were feeding young in a nest in an ivy-covered wall overlooking the river; on two occasions the female brought a small unidentified fish to the nest. Unfortunately I did not see the fish obtained. KENNETH BROWN.

[*The Handbook* section on the food of this species notes that "stranded trout-fly and fish-bones" have been recorded, but we do not know of any instance of fish captured alive, as these presumably were, being either eaten by the adults or fed to young.—Eds.]

ABSENCE OF FEATHERS IN NEST OF WILLOW-WARBLER.

It may be of interest to record that two nests of the Willow-Warbler (*Phylloscopus t. trochilus*) which I found in Yorkshire in 1945 and 1946 contained no feathers in the lining, which was of fine dry grass. Both nests contained young and the attendant males of both were heard in song. KENNETH BROWN.

[The Rev. F. C. R. Jourdain (*Handbook*, Vol. ii, p. 10) considered that feathers are used "almost invariably".—Eds.]

THE RED-FLANKED BLUETAIL: A NEW BIRD TO THE BRITISH LIST.

THE first number of the new series of *The Scottish Naturalist* (Vol. ix, pp. 6-7), noticed on another page, contains the important announcement of the occurrence in Shetland of a bird new to the British List, the Red-flanked Bluetail (*Tarsiger cyanurus*), also called the Japanese Bush-Robin.

The bird was observed by Mr. Samuel Bruce on October 7th, 1947, near Skaw on Whalsay. Mr. Bruce writes that from its mode of feeding he at first sight took it for a Robin, but "on getting my glass on the bird I was somewhat startled to find that it had a blue rump and that the orange markings were confined solely to its flanks. It was busy catching insects around the pools of water on the barren hills and frequently perched on high tussocks to dart down after them. It was rather shy and kept flitting about quickly from pool to pool around which its food was most plentiful, never rising very high but keeping low to the ground. It carried the wings rather under the tail. I did not hear it make any sound. In order to establish its identity I procured it."

As may be gathered from this account, the Bluetail is allied to the Robin and Redstart. In the adult male the whole upper-parts are more or less blue, but the Shetland specimen (which was not sexed) is a young bird in its first autumn. Its identification as *Tarsiger cyanurus* was confirmed by Mr. N. B. Kinnear at the British Museum, where comparison with a series showed that it belongs to the typical race, *T. c. cyanurus*, whose breeding range, so far as known, extends, according to Buturlin and Dementiev (*Systema Avium Rossicarum*, Vol. 1, p. 255), from near the western slopes of the middle Urals through western and central Siberia to Lake Baikal. There is only a single previous recorded occurrence in western Europe at Pisa, Italy, in November, 1879.

A coloured plate from a kodachrome photograph of the specimen is given.

THE EDITORS.

LATE NIGHTINGALE IN SUSSEX.

ON⁷ October 10th, 1947, I heard a Nightingale (*Luscinia m. megarhyncha*) in song near Handcross, Sussex. It sang short phrases almost continuously for about five minutes. When it had stopped singing I had a very brief glimpse of the bird before it disappeared through the undergrowth. The day was warm and sunny.

Except for a record of November 10th, 1836, in Oxfordshire, this would appear to be the latest date for this species in this country.

I. J. FERGUSON LEES.

BEWICK'S SWAN IN SHETLAND IN SEPTEMBER.

ON September 6th, 1947, I saw a solitary Bewick's Swan (*Cygnus b. bewickii*) on Loch of Cliff, Unst, Shetlands. It was repeatedly attacked by Great Skuas (*Stercorarius s. skua*). It was still there on September 8th.

On September 9th I saw what was presumably the same bird on Loch Watlee, a few miles to the south. It was seen on the latter loch by R. Baxter and P. Parry on September 26th, 1947. It would be interesting to know if this bird summered in Shetland, or whether it had just come in. The movement from one loch to the other suggests the latter. Local information supported this view. The bird appeared to be in good health, though the yellow on the bill was not brilliant. *The Handbook* does not mention any occurrences of this bird in September.

NORMAN W. MOORE.

FERRUGINOUS DUCK IN LEICESTERSHIRE.

ON NOVEMBER 30th, 1947, I saw a Ferruginous Duck on the River Soar between Barrow and Loughborough. It was swimming alone amongst reeds near the side of the river. Although I was somewhat concealed by some willows when I first saw the bird it took alarm and flew up; after circling around several times, however, it landed again a short distance further up-stream.

After stalking it to about 30-50 yards, I obtained a tolerably good view with binoculars in a good light for a short time before the bird was unfortunately frightened away by a passing train.

During the period of observation I noted the following points: general build much as a Pochard or Tufted Duck; head and neck brownish-chestnut; back dark brownish; flanks light chestnut; under tail-coverts pure white; bill polished slate colour. The irides gleamed lightish, but I could not determine their exact colour. The belly, as seen in flight, was pure white and the broad white wing-bars very noticeable.

P. H. GAMBLE.

[A field sketch of the bird and of the appearance of the spread wing confirms the identification.—EDS.]

FIRST BREEDING OF GANNETS IN CHANNEL ISLANDS.

FOLLOWING the publication of an article on Alderney in the *Countryman* (autumn 1947), in which mention is made of the new gannetry on Ortac and the Garden Rocks (see *British Birds*, xxxix, 309-312), I received a letter from Major J. A. A. Wallace, M.C., and I am grateful for his permission to quote as follows: "At the time of the military evacuation 1940, I was commanding 341 M.G.T.C., the garrison of Alderney. We evacuated on a Sunday in June at 6 hours' notice—I think it must have been June 23rd. I do know that the previous Wednesday afternoon I and some of my junior officers went to Ortac, as I was anxious to study the Kittiwake colony there. One of my subalterns came to me in great excitement and wanted me to come and see 'a big white bird like an albatross.' I went—it was a Gannet on her nest. It was the only one and all the local people assured me—the first. It was on top of Ortac, where as far as I can remember the going was easy, though the landing had been very difficult. I can't be more precise, but if I could go with you I could show you the exact spot. The sitting Gannet eventually flew off—she had an egg and presumably hatched it out and so started the new colony. In the same season I landed on the Garden Rocks several times, but there were no Gannets there then. From my home address (Stranraer) you will see that I live almost in sight of Ailsa, so there was no mistake."

Major Wallace's evidence proves very clearly that the Gannet (*Sula bassana*) first bred in the Channel Islands in 1940.

R. M. LOCKLEY.

GANNETS BREEDING ON THE SEPT-ILES, BRITTANY.

ON July 23rd, 1939, we visited the bird island of Rouzic, one of the Sept-Iles, off the north coast of Brittany, France. On the crossing from the mainland to the islands we saw about 30-50 Gannets (*Sula bassana*) fishing. Amongst them were a few brown birds of the previous year. On the island itself, on a rocky promontory directed to the south-west, Gannets were also present. There were at most 20 individuals. In a photograph of the top of the rock four adult Gannets can be seen sitting, in addition to many Herring-Gulls (*Larus argentatus*). We have no certain ground for stating that the Gannet at that time was already nesting on Rouzic. According to the watcher, M. Le Penven,

the species had still never bred on the Sept-Iles. Also in a booklet issued in 1930 by the Ligue française pour la Protection des Oiseaux on the bird-life of the Sept-Iles there is no positive indication of breeding.

DIETER BURCKHARDT AND LUKAS HOFFMANN.

The above note was sent to us in the autumn of 1946 through Mr. David Lack, who had met the observers in Switzerland, and it was, we believe, the first intimation to ornithologists that Gannets might be breeding on the Sept-Iles. We immediately communicated with M. Noel Mayaud, the well-known French ornithologist, with a view to securing, if possible, more up-to-date information, and especially to ascertaining whether the birds had since definitely established themselves as breeders. Apparently this important addition to the French list of breeding birds had remained unknown to any of the leading French ornithologists up till that time, but after enquiry M. Mayaud was able to inform us early in 1947 that Gannets had now definitely been breeding on Rouzie for several years. We acceded, however, to his request to defer publication until more exact information had been obtained. Later, at the B.O.U. meeting in Edinburgh in June, 1947, we discussed the matter with MM. Olivier and Etcheopar, who also interested themselves in the matter. On November 11th, 1947, we heard further from M. Mayaud that a M. Berthet had visited Rouzie in June of that year and obtained further data. On June 17th he found about 140 to 160 Gannets present and found 14 nests with eggs or young, as well as about 15 old nests. According to information given by M. Le Penven, the watcher, "Gannets were wintering in good number in 1939-40. During the next spring (1940) several Gannets remained in Rouzie and also during the spring of 1941, but owing to the circumstances no proof of breeding was obtained. It was during the spring of 1942 that the watcher was sure of the nidification, having found eggs and young". It must be admitted that there is a certain ambiguity as to the exact year when breeding began, since Mme. Billot, of "La Ligue Française pour la Protection des Oiseaux" has stated in a letter to M. Olivier, which he has most kindly shown us, that "the watcher reports that the first nests were in 1940, and that they appeared on Rouzie in 1939." It seems evident that the watcher did not keep exact notes and his evidence as to the precise year of first breeding is probably therefore somewhat unreliable, but it seems reasonable to accept provisionally that the first nests actually *seen* were in 1942 and that breeding in the previous years was inferred.

We note that an announcement of the breeding of Gannets on Rouzie appears in the "Bulletin de la Ligue Française pour la Protection des Oiseaux" appended to the current number of *L'Oiseau* (Vol. xvii, No. 2), together with photographs, but no information as to the numbers or history of the colony is given.

THE EDITORS.

[Since the above was in the press Mr. R. M. Lockley has personally visited the Sept-Iles and we are glad to be able to add the result of his investigations on the spot.—EDS.]

On May 17th, 1948, I visited Les Sept-Iles in the company of M. Georges Le Penven, the warden of the islands for the French League for the Protection of Birds. Unfortunately there was too much swell to permit a landing, but I estimated that some 250 Gannets were present on the sloping cliff of the north-east side of Ile Rouzic. Of these about 100 flew off when the boat drew close to the cliffs. From my experience of visiting other gannetries at this time of year, I find that it is usually the "unoccupied" birds (i.e. the non-breeding and/or "off-duty" mates of the brooding birds) which fly away at first, and that the sitting bird invariably remains on the nest until driven away by a much closer approach by the observer. It is possible therefore to form, from a boat at sea, a reasonably accurate estimate of the number of occupied nests in a small cliff gannetry by counting the birds which remain on their nests. In this instance approximately 115 birds were observed to remain on their nests. The qualification "approximately" is necessary because it was not possible to count any individuals which might have been concealed in a fold in the cliffs, and also the swell made it difficult to count with perfect accuracy. But three careful counts during the half-hour we remained under the gannetry gave an average of 115 sitting birds.

This new gannetry is situated on the *north-east* corner of Rouzic, and most of the nests are on an east-facing slope; about 16 nests are on a slope facing north. The colony is divided into three distinct groups on three adjacent projections of the cliff, which rises from a rough rock-strewn base to a grassy pinnacle about one hundred and twenty feet above sea-level. The most easterly section was estimated to hold 19 occupied and several unoccupied nests; the central group 41; and the most northerly group 55 nests; in all at least 115 occupied nests. It was not possible to count accurately what appeared to be unoccupied nests in the "dead" or assembly areas around the colonies.

M. Le Penven kindly showed me his log-book of visits to Rouzic since 1938. In this only one apparently firm count of nesting pairs is given. According to this record, and to supporting statements by M. Le Penven, there were no Gannets in 1938; one pair which "perhaps had an egg" in 1939; "probably six pairs in 1940"; in 1941 "27 Gannets were seen during September"—in this and the years 1942-44, M. Le Penven was only able to make four visits altogether, he informed me, and owing to the restrictions imposed by the German occupation authorities, it was not possible to count the Gannets during the breeding season. In May, 1945, there were, he records, 25 pairs breeding; in 1946 they were recorded as "greatly increased"; and in 1947 they were "doubled on 1946 and breeding in three sites", as in 1948.

From all the foregoing evidence, conflicting as it is, it would appear that the Gannet first settled on Rouzic in 1939, when one pair may have bred. The colony seems to have increased to about 115 pairs in the nine years to 1948. This is a much slower rate of increase than that of the Alderney colony, which reached 450 pairs in the six years 1940-1946.

At Alderney the Gannets are not molested, but it appears that, in spite of the fact that Rouzic is declared a sanctuary under the French League for the Protection of Birds, some depredation may occur as the result of the occasional visits of the numerous fishermen who work that region from several of the neighbouring ports of Brittany—in the temporary absence of the warden of the islands, who lives on the mainland. This may account for the "15 old nests" discovered by Mr. Berthet, and for the unoccupied nests which I saw; it is, I believe, unusual to find empty nests in a new and apparently thriving and expanding gannetry.

R. M. LOCKLEY.

FIRST BREEDING OF FULMAR IN SOUTH WALES.

MR. W. MIALL JONES, of Aberystwyth, informs me that the Fulmar (*Fulmarus g. glacialis*) bred near the Bird Rock, New Quay, Cardiganshire, in 1947. I myself observed three pairs on ledges there in 1945, but there were no signs of eggs or chicks. Mr. Jones first saw them on ledges on June 3rd, and estimated eight birds present at one time. On August 19th he received information from a boatman that there were two young Fulmars on ledges which could be seen from the sea. Mr. Jones writes: "I went to New Quay on the 22nd, but by that date one young Fulmar had flown, but I was able to see the other. I did not see any adult Fulmars on that day, and was informed by the boatman and a Mr. Graham that the adult Fulmars had not been seen for some days."

R. M. LOCKLEY.

LARGE NUMBERS OF BLACK-TAILED GODWITS IN SUSSEX.

IN the autumn of 1947 there was a considerable migration of Black-tailed Godwits (*Limosa l. limosa*) through the south-western corner of Sussex, particularly at Thorney Island; though up to fifteen were recorded inland at Chichester gravel-pits on August 21st. Besides ourselves, birds were seen by Messrs. E. A. Blake, G. des Forges, G. M. Moll, C. W. G. Paulson and J. A. Smith.

The following numbers were recorded on the twelve visits paid to Thorney during the autumn:—August 15th, none, August 21st, 500; August 29th, 100; September 1st, 150; September 4th, 3; September 7th, 30; September 14th, 20; September 21st, 2; October 5th, 600; October 12th, 300; October 19th, 1; October 26th, none.

The godwits were generally in one single flock. It will be noted that the two peak dates of August 21st and October 5th-12th were

both preceded and followed by days with few or no birds present. The large flocks did not stay more than a few days. The flocks of 300, 500 and 600, would appear to be the largest numbers recorded in single flocks in Sussex.

I. J. FERGUSON LEES AND J. A. WALPOLE-BOND

LITTLE STINT WINTERING IN DEVON.

ON December 7th, 1947, I saw a Little Stint (*Calidris minuta*) on the Exe estuary. The bird was with a flock of Dunlin (*Calidris alpina*), among which its small size was very noticeable on the ground and in flight. Its grey upper plumage was very like that of its companions, except that it was decidedly more boldly marked, the dark centres of the feathers contrasting with the pale edges. The comparatively short and straight beak was observed, and the soft "teet-tcet-teet" call-note heard once as the flock took flight, returning to the same spot again.

On January 4th, 1948, the bird was seen again at the same spot by my friends, Major J. K. Windeatt, Mr. F. R. Smith and his daughter and myself.

R. G. ADAMS.

AMERICAN PECTORAL SANDPIPER IN SOMERSET.

ON September 6th, 1947, while walking across part of Porlock Marsh, Somerset, I noticed an unfamiliar wader consorting with a Dunlin (*Calidris alpina*). The light was poor, but I was able to note the most striking characteristics, and on reference to *The Handbook* I suspected that it might be an American Pectoral Sandpiper (*Calidris melanotos*). On September 7th, assisted by A. V. Cornish and E. W. Hendy, I was able to confirm this after three hours' observation at ranges down to 12 feet.

The following description was noted:—Bill appeared black, but possibly mud-encrusted, slightly lighter at base, slightly decurved; crown brown-black, slightly striated, bordered on each side by buffish-white stripe; back showed pronounced stripy effect when bird bent down while facing observer, stripes being caused chiefly by two fine whitish lines along each side, general colour sepia; the closed wing showed outer primaries nearly black and inner ones with a rufous tinge; wing (sprcad on ground): secondaries dark brown, fine whitish line bisecting wing laterally; tail (seen on ground) with dark centre feathers bordered by lighter greyish feathers; chin white; breast buff, evenly streaked with grey or grey-brown ending abruptly; under-parts and under tail-coverts white, under-wing (in flight) white or grey-white; legs yellow or greenish-yellow. The bird was longer in the leg than the Dunlin but otherwise only very slightly larger.

The flight was snipe-like, but not so erratic; the bird never "towered" and settled again rapidly, probably because of its general tameness. It had two quite distinct stances; one was a hunched position in which it could easily be passed over for a

Dunlin in a cursory inspection, the other, which it assumed several times while under observation, was quite different. The neck was raised and extended and the legs straightened; the bird then looked, in shape, like a miniature Ruff (*Philomachus pugnax*) in winter plumage.

The bird was solitary, not associating, except by accident, with other waders; it was less active than most Dunlins, sometimes standing for a minute or two motionless.

On at least two occasions, when it rose without being flushed, no note was heard. The note on rising was a hoarse, sibilant "tweet-tweet" once or more repeated; a faint squawk was heard once when the bird was on the ground.

I saw it again on September 8th and 9th (when it was also seen by A. V. Cornish and H. J. Craske), and on a dozen or more occasions during the succeeding month. It was last seen (by E. W. Hendy) on October 14th, 1947. I might add that the marsh throughout the period was extremely dry and the bird frequented a mud flat left by the retreating water. J. A. NELDER.

GREATER YELLOWSHANK IN IRELAND.

At the beginning of March, 1947, I saw in a Dublin poultry exporter's store, a wader which was unfamiliar to me. As it was not considered of any edible value, it was given to me and I took it to the National Museum, Dublin, where it was recognized as a Greater Yellowshank (*Tringa melanoleuca*). The skin has been preserved and is in the National Collection. Unfortunately, no details of its origin could be traced beyond the fact that it undoubtedly was shot in Ireland. The firm concerned receives wildfowl from all over the country and once the bird had been separated from the consignment with which it arrived there was no possibility of tracing it further. F. W. Fox.

[Mr. E. O'Mahony, of the National Museum of Ireland, has kindly sent us the measurements of the bird, which are as follows: wing 195 mm., bill from feathers 56 mm., tarsus 64 mm., tail 72 mm.—EDS.]

AVOCET IN NORTH DEVON.

ON November 5th, 1947, I saw an Avocet (*Recurvirostra avosetta*) on Northam Burrows, N. Devon, off the sea marsh at the northern end. It was feeding at the edge of the water and was very shy, continually straightening up and looking around at every cry from its neighbours, Curlew (*Numenius a. arquata*) and Bar-tailed Godwit (*Limosa l. lapponica*). It frequently flew short distances and I heard it call on one occasion when a Great Black-backed Gull (*Larus marinus*) flew over its head. It was apparently an immature bird, as the top of the head and down the nape, back and wings were dark brownish black and the white on the wing coverts was indistinct and flecked with blackish-brown. The bill

was dark brownish-black to black from the turn; the legs appeared dark grey.

It was searched for on subsequent days, but was not seen again.

GEOFFREY H. GUSH.

[Though Avocets are not excessively rare on the Exe estuary there appears to have been no record for North Devon for many years.—EDS.]

“INJURY-FEIGNING” OF OYSTER-CATCHER.

IN connexion with E. L. Roberts' note on the “injury-feigning” of an Oyster-catcher (*Hæmatopus ostralegus occidentalis*) (*antea*, Vol. xl, p. 284), and especially as there appear to have been only two other records in the British Isles, the following may be of interest:—

In the first week of June, 1947, Mrs. F. E. Carter and I were bird-watching in the Orkney Islands, and saw an Oyster-catcher standing on the grass a few yards from the shingle. As we approached the bird, which had a dejected and dishevelled appearance, it ran very stiffly away with lowered head and drooping wings. One wing hung very low, the feathers apparently quite disordered and so battered-looking that we both believed the injury to be genuine. The bird hobbled to and fro as though seeking an exit from the field, and finding one, half fluttered, half ran into the next enclosure, appearing almost to fall in doing so. We followed, and not until a minute or two later did we recognize the performance to be “injury-feigning”. At length the bird sprang into the air and flew back over our heads with sharp “cleep, cleep” alarm cries.

Two days later, on another island, we noticed two other Oyster-catchers which had probably left their nests in the shingle (we found a nest with eggs chipping) running along the shore in a poor attempt at “injury-feigning”, more as described by E. L. Roberts, but with lowered heads and drooping wings.

S. V. BENSON.

LATE SANDWICH TERN IN DEVON.

ON October 26th, 1947, I saw a Sandwich Tern (*Sterna s. sandvicensis*) on the Exe estuary, the same individual, no doubt, being seen again on November 1st, 8th and 16th. It was an immature bird with beak that looked entirely black, the forehead being white, nape thickly streaked with black, upper plumage thickly speckled with brown, and primaries grey. On the first three occasions it was observed diving in characteristic fashion, and on the last date it was seen to alight on a sand-bank and there watched preening.

R. G. ADAMS.

COMMON AND HERRING-GULLS PERCHING IN TREES.

WITH reference to Mr. Barnes's record of a Lesser Black-backed Gull (*Larus fuscus*) perching in a tree (*antea*, p. 126) it may be

worth recording that in December, 1940, I found that Common Gulls (*L. canus*) habitually perched, ten or more together, on trees by a lake in Birkenhead Park, Cheshire, in company with Black-headed Gulls (*L. ridibundus*) and a few Herring-Gulls (*L. argentatus*).
A. W. BOYD.

FOOD OF HAWFINCH AND BULLFINCH.—Mr. H. G. Attlee draws our attention to the seeds of the Wych-Elm (*Ulmus glabra*) as a frequent item in the spring food of the Hawfinch (*Coccothraustes coccothraustes*) not mentioned in *The Handbook*, and also notes that he has frequently observed Bullfinches (*Pyrrhula pyrrhula*) in late autumn and winter feeding on the seeds or "keys" of the Ash (*Fraxinus excelsior*), often at some height in the branches.

REVIEW.

The Scottish Naturalist, Vol. ix, No. 1, April, 1948. Edited by Prof. V. C. Wynne-Edwards and Dr. J. W. Campbell.

It is with real pleasure that we welcome the re-appearance of this old established and excellent journal under the able editorship of Prof. V. C. Wynne-Edwards and Dr. J. W. Campbell. The *Scottish Naturalist* was a deplorably early casualty at the beginning of the war and fears were not lacking that its eclipse might prove permanent. Every credit is due to the members of the Scottish Ornithologists' Club for their enterprise and initiative, in co-operation with the publishers, in getting the magazine re-started and securing at the outset a sufficiently long list of subscribers to place it, as we hope, on a secure footing. There is ample scope, and indeed a very real need, for a journal specializing in the natural history of what is in many respects, biological and otherwise, the most interesting part of the British Isles, and it should receive the support of everyone interested in the subject. It will be issued three times a year and will cover, as before, all groups of the animal kingdom, though we may anticipate that a large proportion of its space will go to ornithology. This is conspicuously the case in the number now before us, though we understand the emphasis may be somewhat less in subsequent issues.

The record of a bird, the Red-flanked Bluetail, new to the British List, is dealt with on another page (214), and a valuable paper by Miss E. V. Baxter describes "A century's changes in Scottish Ornithology." Other ornithological items which may be mentioned are papers on "Bird territory as a 'fixed address'" by the Rev. J. McWilliam, "The Rook roosts of the Lothians, winter 1946-47" by J. H. B. Munro, "The Magpie in north-east Scotland" by Adam Watson, and "The value of individual marking of birds" by R. Carrick. Short notes record Hawfinch in Perthshire, where the bird is uncommon, an immature Yellow-breasted Bunting (*Emberiza aureola*) seen on Fair Isle on September 12th to 13th, 1946, a Collared Flycatcher (*Muscicapa albicollis*) obtained on Whalsay, Shetland, on May 11th, 1947 (the first Scottish record), a Turtle-Dove in Sutherland in August, 1946, and several broods of Eiders, as well as adults, seen on August 6th, at Brora, E. Sutherland, an area where regular breeding has not been recorded hitherto.

Our only regret is that the journal has adopted the practice of abandoning the use of capital letters for English species names. A spirited editorial defence of this decision seeks to forestall criticism, but we do not in the least accept the argument. The names of particular species of animals are proper names just as much as those of persons, places, countries or national groups, and there is no valid excuse that we can see for arbitrarily ignoring in this instance the universally accepted convention of the English language that proper names are spelt with initial capitals. We are sorry that our good

friend prof. wyne-edwards—we beg his pardon—has lent the authority of his name to this practice, which is not made correct by the fact that two or three widely read biological writers, who might, we think, have known better, have adopted it. We think it is quite time a protest was raised against it lest it should gain more widespread acceptance simply, so to speak, by default, but we should be lacking in a sense of proportion if we laboured the point in a notice of a publication for whose essential contents we have nothing but praise and to which we most cordially wish the success which it merits and will surely achieve.

LETTER.

ABNORMAL FLIGHT OF BIRDS.

To the Editors of BRITISH BIRDS.

SIRS,—In an article on this subject (*antea* Vol. xl, pp. 262-4) A. Whitaker cites as examples of abnormality two diving descents by Rooks (*Corvus f. frugilegus*) and Jackdaws (*C. monedula spermologus*) from an estimated height of 600-700 feet to a freshly ploughed stubble where gulls were feeding, and interprets this behaviour as a resort to stunt-flying made necessary by “a remarkably pronounced upward current . . . strong enough to prevent . . . a normal descent.”

Those who have watched Rooks and Jackdaws on migration, e.g. in Germany, will at once recognize the close agreement between Whitaker's detailed description and the characteristics of a normal descent by a flock on passage, *viz.* some preliminary hesitation and circling above a likely feeding-ground followed by spectacular descent of birds in succession, diving headlong with a few spirals, the wings half closed. It is true that the call described seems different from that heard (by us at least) in Germany; but this is of minor importance, and we suggest that, in view of the actions described, the date (October 12th), and of the east-west direction of flight before descent noted by Whitaker, it would be much more reasonable to interpret this form of descent as normal migratory behaviour—perhaps by Continental immigrants. There would then be no need to postulate peculiar atmospheric conditions in order to account for it.

JOHN H. BARRETT, E. J. M. BUXTON, P. J. CONDER, M. J. WATERHOUSE.

The aeronautical and meteorological aspects of the article by A. Whitaker referred to above are open to criticism on technical grounds.

The comparison with an aircraft's flight is misleading. He says the birds “turned clockwise on a spiral”, later calls this “spinning” and equates it to the spinning of an aeroplane. But, aeronautically, a spiral dive is not the same as a spin (of which stalling is an essential characteristic) although in both the downward path is a spiral. An accurate aeronautical parallel is the aileron turn, which merely implies a change in the direction in which an aircraft or bird is heading downwards and, by virtue of the continued dive, involves considerable speed of descent,—which is exactly what so impressed both Whitaker and the present writer. (Whitaker's expression “leaf spin” is not current in the R.A.F. A “falling leaf” descent is quite different from either of these spirals.)

Vertical or almost vertical dives are not necessarily uncontrollable, but spiralling is a convenient way of braking preparatory to flattening out.

The suggestion that there were remarkably strong up-currents is not supported by meteorological evidence. The 1200 G.M.T. temperatures at Little Rissington and Defford were 48° F. and 52° F. respectively, which in October would not give such large local variations of surface heating as to cause violent up-currents. The Director of the Air Ministry Meteorological Office states *in litt.*: “The upper air temperature conditions were such that over the first 2000 feet there would be strong turbulence set up by surface obstructions. The local up-currents in eddies caused by such obstructions are in general about the same order of magnitude as the measured wind speeds.” Yet, according to Whitaker, “there was little apparent wind.”

JOHN H. BARRETT.

NOTICE TO CONTRIBUTORS.

British Birds accepts papers and notes dealing with original observations on the birds of the British Isles and Western Europe or, where appropriate, on birds of this area as observed in other parts of their range. Review articles on subjects of current ornithological interest will also be considered.

Contributors are asked to observe the following points, attention to which saves the waste of much editorial time on trivial alterations.

MSS. if not typed should be clearly written. Authors of papers, especially those containing systematic lists, lists of references, tables, etc., should consult previous papers on similar lines in *British Birds* as a guide to general presentation and set-out, including use of particular type, stops, and other conventions, such as date following the month (January 1st, etc., not 1st January), names of books and journals in italics, not inverted commas, and so on. Capital initial letters are to be used for proper names of definite species, but not for names used in a general sense or covering more than one species: thus "Great Tit," but "flocks of tits." [In systematic lists the whole name should be in capitals]. The scientific name (underlined in MS. to indicate italics) follows the English name in brackets without any intervening stop. Scientific nomenclature follows *The Handbook of British Birds* or H. F. Witherby's *Check-List of British Birds* based on this. When the subspecific name (if this is used) repeats the specific name the initial letter only should be used for the latter; otherwise the whole name should be given in full: thus "*Parus m. major*," but "*Parus major newtoni*."

Notes should be drawn up in as nearly as possible the exact form in which they will be printed, with signature in BLOCK CAPITALS, and the writer's address clearly written on the same sheet. If more than one note is submitted each should be on a separate sheet with signature and address repeated. Though suitable headings and scientific names can be added by the Editor, if necessary, they should be inserted by authors as far as possible. Communications should always be as concise as possible, though reasonable detail can be given where this is important. Notes or records of subsidiary importance may be abbreviated or otherwise modified by the Editor for inclusion in the section of "Short Notes." Maps or graphs must be neatly and boldly drawn in Indian ink, with due allowance for reduction when necessary.

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“PLOVER’S PAGE” BEHAVIOUR OF DUNLIN

BY

C. OAKES, M.B.O.U.

ON May 3rd, 1931, a sunny day with a fresh N.W. wind, I was on the sea-wall between Marshside and Crossens, on the south side of the Ribble Estuary. On rough pastureland behind the sea-wall a flock of fully 500 Golden Plovers (*Pluvialis a. apricaria*) were feeding, whilst on the inland side of the main flock, and to the rear of it, I noticed a single Dunlin (*Calidris alpina*). I was on the point of leaving the embankment for the mudflats when I caught sight of a man accompanied by a sheep-dog entering the field. The intruders disturbed the feeding birds, which at once took wing *en masse*, the solitary Dunlin flying with them. Typical aerial evolutions followed, the flock descending and wheeling over the salt-marsh beyond the embankment, where presently both man and dog reappeared, and finally coming to rest on their original feeding ground behind the sea-wall. As they alighted I noted with some surprise that the Dunlin was not only with them, but in the same relative position at the rear of the flock that it had occupied before the birds took wing. Beyond taking note of this incident I gave no further thought to it at the time.

In late June, 1943, I was informed of the position of a nest of the Golden Plover in which the eggs were just hatching on Stiperden Moor, N.E. Lancashire, at 1,300 feet. I visited the nesting-ground on July 1st. The old birds had, however, moved the youngsters from the bare peat to a boggy patch of rough grassland, the “paddock” of a derelict farm, originally fenced off but with only the stout posts now remaining to mark the limits of the enclosure. When I arrived both parents were in evidence, one standing on a grassy hummock and the other (which had noisily announced my presence long before I reached the spot) flying back and forth over the breeding territory; both birds, of course, persistently calling. A third bird was also vociferous, for the flying plover (A) was accompanied by a Dunlin, which followed every movement of the larger bird. Both of them flew close together and at the same point in every circuit of the area descended low over a certain spot. It was while I was watching one of these descents that I became aware that the bird on the hummock was no longer alone; a Dunlin was standing beside it. The birds were close together—there was hardly sufficient room for both—and the smaller of the two appeared to have difficulty in keeping a foothold. Obviously both species had young on the boggy ground. When the Golden Plover (B) whistled, the Dunlin also called, a note I had not previously heard, neither trill nor “purre” but a double note which varied in pitch and indicated concern. In a moment or two Plover B left the hummock and landed on a slight eminence on the peat, the Dunlin at once following and alighting beside it. The two birds were facing me

in the full sunshine. Intriguing as was this spectacle, it was surpassed when B took off from the peat and flew to one of the wooden posts with the Dunlin in pursuit. The plover alighted first and its faithful attendant, with legs down and wings fluttering in its efforts to obtain a lodgment, actually succeeded in landing beside it! The post was, unfortunately, only tenanted for a few moments, but in this space of time the two birds, both in full breeding dress, made a unique picture. The foregoing incidents, though short in the telling, were enacted in something like 15 to 20 minutes. Plover A in the meantime had been flying in wide circles, alighting at intervals, and calling more or less continuously. These tactics, aimless though they sometimes appear to the observer, are usually deliberate and in this case were effective, for it soon became evident that the broods had separated. The Golden Plover chicks must have threaded the long grasses in response to A's promptings, for I caught a fleeting glimpse of one youngster scrambling over the peat in that direction. Both A and B were shortly deserted by their Dunlins, which latterly both attached themselves to B, and then finally gave full attention to their own brood amongst the sphagnum. I afterwards inspected the post. It was rectangular, the top roughly 7 by 4 inches—just large enough, in fact, for both species to stand upon it side by side.

Mr. A. Welch and I spent several hours watching shore-birds on the beach at Fairhaven on November 15th, 1945. This locality is on the north side of the Ribble Estuary where, even at low water, the foreshore is narrow owing to the course of the navigable channel. There was a cold wind from the south-east and some cloud, but visibility was good. Mixed parties of Knots, Dunlins and Ringed Plovers were busy as usual near the tidal pools, and there were a few Grey Plovers (*Squatarola squatarola*), mostly single birds, scattered about further inshore. One of these in a muddy creek had a small wader feeding with it which proved to be a Dunlin. I drew my friend's attention and we watched the birds for some minutes with the glasses and then deliberately put them up by walking quickly in their direction. Both birds flew together (both called) and after a swift flight of perhaps a quarter of a mile, alighted at the water's edge. The binoculars revealed the Dunlin energetically feeding once more close to its companion—sometimes, it appeared, within a few inches. Again deliberately disturbed they flew up the beach for a considerable distance—both calling on the wing—and alighted together as before. A low-flying aeroplane which passed over the mudflats and put most of the waders to flight prevented further experiments on this interesting pair.

In view of these observations it is surprising that so few references can be found in the literature dealing with this phase of behaviour on the part of the Dunlin. More remarkable still when we consider that it has earned local and folklore names for

the species. I have made a search of the literature; I do not claim that it is an exhaustive one, yet I can only trace three references which include field notes. These are given below.

In *A Vertebrate Fauna of Lakeland*, H. A. Macpherson, 1892, p. 380, is the following:—

“On the fells near Alston, the name of ‘plover-provider’ attaches to the Dunlin from its well-known habit of associating with the Golden Plover Upon Crossfell, for example, I found a fair sprinkling of Dunlins and Golden Plover in June, 1888. We first heard the two species call almost simultaneously, and noticed a Dunlin closely following a Golden Plover in flight, even to pitching on a tussock beside the larger bird when it alighted. When the Plover rose, so did the Dunlin. When the Plover whistled the Dunlin trilled. Once we saw five Dunlin stoop to and settle around a Golden Plover, waiting as sedately as the Plover.”

R. N. Winnall and G. K. Yeates in *Bird Haunts in Wild Britain*, 1932, in writing of the Dunlin state (p. 161):—

“And how assiduous he is in his attention to that other moorland bird, the Golden Plover. He is known locally as the Plover’s Page, and the name I have always understood to be derived from the bird’s habit of arriving at the breeding-ground just before the Plovers, but I feel sure that the correct derivation lies in this trait of constantly following the Plover about. They stand together in the heather, they fly off together, the Plover leading, its attendant in hot pursuit.”

Captain Collingwood Ingram in “Birds of Iceland”, *Ibis*, Vol. vi, Oct., 1942, p. 489, writes:—

“Quite apart from the superficial resemblance of their plumage, the Golden Plover and Dunlin seem to have much in common. They are not only often met with on the same type of ground, but are also very frequently seen in close consort. Perhaps this partnership is a little one-sided, for it is obvious that it is the Dunlin rather than the Plover, that seeks this companionship. The Dunlins evidently regard the larger bird as an ally. No doubt it is from this association that the Dunlin has been named in Icelandic *Louthrall*, a word which means ‘slave of the Golden Plover’ or, more precisely, ‘Plover’s slave.’”

(Ingram also discusses the parallel in colour pattern in the two species. I venture to think that *plumage* pattern would be the correct phrase to use in this connexion.)

The affinities of plumage pattern are obvious on the breeding-ground, but do not explain the winter observation on the Ribble Estuary of a Dunlin as “page” to a Grey Plover at a season when the characteristic markings are almost, if not entirely, absent. On the other hand this incident does, in turn, suggest that in the northern limits of its breeding range the Dunlin may associate with the Grey Plover. In the Crossens flock of May, 1931, given above, many of the Golden Plovers had assumed summer plumage, others had not. The Dunlin was in winter dress. It is clear that discussion should be deferred until further material has been accumulated. The majority of previous observations have been made on the breeding-ground, but similar behaviour also occurs on the shore. This paper has been written with the intention of re-stating the existence of a type of bird behaviour which has been given little attention, and in the conviction that future field-observations will amplify it.

TITS AND PEANUTS

BY

E. J. M. BUXTON.

DURING the hard weather in February, 1947, my wife and I found a small cache of peanuts, preserved in the house since 1939, when we had been in the habit of stringing these together and hanging them up for the tits. On February 12th, therefore, I hung up a string of 21 peanuts by the house where I was living, in Buckinghamshire. On the ground below the string a few loose kernels were scattered, and these were soon eaten by several birds including the three species of tits which regularly visited the garden: The Great Tit (*Parus major newtoni*), Blue Tit (*P. cæruleus obscurus*), and Coal-Tit (*P. ater britannicus*). The string was hung up from the same nail and at the same height as scraps of meat and bones, etc., which had been constantly visited by all three species.

To our surprise none of these nuts was opened, or even pecked, by the morning of February 18th, although tits were often seen to visit the string and perch on it. During the seven years since we had last hung up peanuts a new generation of tits had grown up that was as ignorant of peanuts as, until the other day, the ordinary English child was ignorant of bananas. It was obviously going to be of some interest to try to discover how soon and by what means the tits would learn to open the peanuts.

On February 15th, as a control, I hung up a string of peanuts in another garden about a quarter mile away from my own, and which I knew was regularly visited by some at least of my (colour-ringed) tits. By February 18th, these nuts, and mine, were still untouched.

On that day I hung up some scraps of fat immediately above my string of peanuts, and also exposed one kernel of the top nut by removing the husk above it. (The second kernel also would then be visible from the side.) The tits—all three species—at once went to the fat, and even perched on the nuts, but left them unpecked as before.

The following morning the fully exposed kernel had disappeared, but the adjacent (partially exposed) kernel was untouched. Supposing that a tit had removed this one kernel, would it be capable of deducing the means of getting at the others, one of which it could see?

I left the string and waited to see what would happen. By March 4th, nearly a fortnight later, nothing else had happened, and it was obvious that the tits had still not learnt the secret of the peanuts. (The one kernel which had gone might, of course, have been knocked out, or blown out.) By this date the nuts had been reduced to 19 by the depredations of a niece, and one of these had been split by the frost, slightly exposing another kernel. This also remained untouched.

Dr. Thorpe had suggested in a letter that the tits might have neglected the nuts because, being so old, these might have lost their smell. He advised me to put some fat "with a good odour of a kind which you know the tits like" on to a nut and watch results. Accordingly on March 4th, next to the old string of nuts, I hung up at the same level, and on separate strings, one whole peanut dipped in melted fat; one whole peanut not dipped in fat but so hung that a tit could remove it from the string; and one whole peanut into which I had poured some molten fat through a hole underneath, so that there was none on the husk outside (and therefore visible, through the different texture given to the nut). This nut would smell of fat as strongly as the other but to reach the fat (and the kernels) the tits would have to husk the nut.

Nothing happened in the next three-quarters of an hour, so I then hung up a bone near to the nuts, in order to attract the tits back before the smell of the fat on the nuts had faded. This was at once visited by one of my colour-ringed Blue Tits, soon followed by others, a Coal-Tit, and several Great Tits. After six more hours the only sign of any visit by a tit to the nuts was a single small peck out of the exposed kernel at the top of the string, which had not been moved for a fortnight! The nuts treated with fat were ignored.

Next day, March 5th, when there were 6"-8" of snow on the ground, I moved the two fat-treated nuts on to a shelf fixed at the same height, and only a few inches away, as I was not sure that it might not be too difficult for a tit to perch on a single swinging nut. On the shelf I tied both nuts in such a way that a tit could start to fly off with them, but would at once be checked by the string. Between these two nuts I put two loose, untreated nuts, and a few crumbs of bread. (I had noticed that the tits all preferred to fly off with scraps of food before tackling them, and I wished to see if they would learn to open peanuts if they could take them to a branch to use as an anvil.) An hour later the crumbs had gone, but all the nuts were untouched. After another two and a half hours one of the loose peanuts had gone (possibly knocked off), and there were now one or two pecks at the kernels of the nut into which fat had been poured, and in which the kernels were thus slightly exposed. This seems to suggest that the tits recognized the kernels as food by sight and not by smell, for the nut dipped in fat presumably smelt at least as strongly and this was still untouched.

Half an hour later a Great Tit female on the shelf noticed the above mentioned nut (with fat inside), which was then hanging down below the shelf, and she pulled it up, using her beak alone. (It was not necessary for her to put her foot on the string in the well-known way.) She then tried to fly off with the nut, but was checked by the string. She then gave up, and did not try to eat any of the nut. A few minutes later, however, the same bird returned and began to peck at this same nut, and also made

several more attempts to fly off with it. She returned once again and this time clung to the nut, which had again fallen off and was suspended below the shelf, and pecked at it. A Great Tit male then flew up, chased her away, pulled the nut up on to the shelf as the female had done, and also tried to fly off with it. This nut had three kernels in it, which were held in place by the melted fat, and later in the day the one kernel which had been pecked at by the female had disappeared. The others were untouched.

On March 6th the husk had been removed from above these two remaining kernels, and they had gone. The other nut which had been dipped in fat had been opened and the kernels pecked, but not removed. There were also signs of pecking at the husks of some of the nuts on the long (original) string, but none had yet been opened. Later in the day a kernel of one was removed, and at last, after 17 days, the partially exposed kernel at the top of the string had been pecked and a little of the husk removed from above it.

On the following day, for the first time since 1940, tits began to remove the tops of our milk bottles. This seems to have been begun by Great Tits, though Blue Tits later got the habit as well, but whether it was started by the same female that discovered the secret of the peanuts I cannot say. It seems likely that there was some connexion between the two discoveries, but what this was others may speculate as well as I.*

However, to my surprise, this pioneering was not at once followed up, and nothing else happened till March 12th, when an unringed Great Tit male ate the two top nuts on the string and a female (not the earlier pioneer) ate another. I believe this male was the same male which had driven off the pioneer female on March 5th, and the new female was certainly his mate. On March 13th all but three of the nuts on the string were eaten during my absence in London, and these three were eaten on the following day. None of the nuts in the control string had been touched up to March 15th, when I removed it, and hung it in my own garden. These nuts were eaten by two male and one female Great Tits, which invariably flew off to a branch as soon as they had removed a kernel. Neither Blue nor Coal-Tits showed any interest, though in 1939 Blue Tits regularly visited the nuts. They seemed unable to learn through watching the Great Tits, though they soon learnt (by some means) to remove the tops of milk bottles.

From all this it appears that the recognition of peanut kernels as food was made originally by one Great Tit female, who was unable to achieve this until she saw, and pecked, a kernel. Pecking at the husk had never been persisted in long enough to expose the kernel, but it should be remembered that tits normally carry off such objects as nuts to break them open on a branch. Had the

*It may be remarked that the tits remove the tops to some distance before drinking the milk, and thus the need to carry off something before feeding is satisfied. Of course some milk could adhere to the top.

tits been able to do this in the first instance I think it probable that they would have quickly discovered the edibility of the nuts. As it was it seems significant that the discovery was made by one bird only after the carrying off reaction had been at least partially satisfied when the bird began to fly away from the shelf with the tethered nut. Recognition of the edibility of the nut seems to have depended on sight leading to taste, and not to smell. It seems probable that after the first discovery other individuals learnt by watching, as I know that the first Great Tit male learnt from the pioneer female by watching her in her earliest attempts. Presumably his mate learnt from him, and so on. It is clear that as Dr. Thorpe (1944 a) has said: "individual birds of a species . . . vary very greatly in their learning capabilities". My tits appear to have been much less intelligent, or less inquisitive, than those described by Brooks-King (1941), which solved far more difficult and artificial problems. (The husking of a nut might have been supposed to be a very natural and normal problem for a tit.) It should again be noted that throughout this experiment the weather continued very severe, so that there was more than the usual stimulus of hunger.

As I have left the area where these observations were made (and have no more peanuts), I cannot supplement these notes in another season. But a similar experiment might well be tried by someone living in a place where tits formerly took peanuts, and where a new generation has grown up without this, obviously acquired, knowledge.

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MORTALITY OF ADULT AND YOUNG MALLARDS

BY

E. O. HÖHN.

A RECENT examination of the recovery data of Mallards (*Anas p. platyrhyncha*) ringed under the *British Birds* marking scheme, from its inception up to 1946, yielded no information as regards migration which was in any way additional to the excellent summary under this heading in *The Handbook*; I was, however, struck by the difference in length of survival of birds ringed as adults as compared with those ringed as young. A brief analysis of the data from this point of view is presented here.

Lack (1946) has shown that in the Blackbird (*Turdus merula*), Song-Thrush (*Turdus ericetorum*), Starling (*Sturnus vulgaris*) and Lapwing (*Vanellus vanellus*) mortality is higher among young than adult birds and attributes this difference to the greater inexperience of young birds. There can be little doubt that recoveries of ringed Mallard are in the vast majority of cases obtained from birds shot, though unfortunately the finder does not in every case indicate whether this was the case. Phillips (1924) reports that in 80% of the recoveries of Mallards ringed in the U.S.A., the cause of death was shooting; there is no reason to believe that the proportion of deaths due to this cause is any lower in this country. Hence the data to be presented here are based very largely on mortality due to a single factor, i.e., shooting.

The Table gives the numbers of Mallards, which were recovered dead, one, two or three months, etc., after the date of ringing for birds ringed as adults, ringed as young, and for young birds hand reared, for the first three years from the date of ringing and the yearly total for later years. It cannot be assumed that the ringer has always noted the fact that young birds were hand reared; moreover there is no *a priori* reason to assume a difference in survival of young birds hand reared as compared to those "reared" by their mothers. A further column, therefore, gives the data for all birds ringed as young whether hand reared or not. The second column of each category represents the percentage of birds ringed and recovered which had died within the first, second or third year, etc. from the date of ringing. The Table shows that of Mallards ringed as young 89% have died at some time during the first year from the date of ringing, whereas for birds ringed as adults this figure is only 65.3%. Correspondingly the number of adults killed during the second, third and later years (Table 2) is greater than the number of young birds killed in these periods. In other words, a young Mallard has a very small chance of living more than a year. If, however, it survives this period its chances of further survival are increased. The average period for which Mallards survive after the date of ringing given by these figures is 1 year and 2 months for adults, but only 4.5 months for young birds, and the data shown suggest very strongly that the difference is statistically significant.

The case of the Mallard is, therefore, parallel to that of the Black-headed Gull (*Larus ridibundus*), where recoveries of shot birds included a significantly high proportion of first year birds (Lack, 1943). It is surprising that the average life span of a bird of the size of the Mallard should be so low, particularly as it is known that in captivity this bird can live up to 20 years (Niethammer, 1948). The longest life span of a wild Mallard of which I am aware is 11 years (Niethammer, 1943), which is fairly closely paralleled by the longest survival period of an adult, 10 years and 2 months, in the present data.

It is highly probable that mortality from other causes is also higher in young ducks than in adults, for I found (Höhn, 1943) that of 25 young Pochards (*Aythya ferina*) (4 broods) 19 had died by the end of the first two months of life. The average monthly mortality rate per month was thus 33% and it is clear that this must be much lower later, i.e., for older birds, as otherwise none would survive into the next breeding-season.

NUMBER OF MALLARDS RECOVERED IN MONTHS AND YEARS FROM THE DATE OF RINGING.

A. ADULTS. TOTAL RECOVERIES, 305.

1	2	3	4	5	6	7	8	9	10	11	12	First Year Total
29	11	8	15	13	20	16	19	21	14	16	17	199—65.3%
13	14	15	16	17	18	19	20	21	22	23	24	Second Year Total
13	8	7	3	9	7	6	4	7	4	1	4	73—23.9%
25	26	27	28	29	30	31	32	33	34	35	36	Third Year Total
2	3	1	2	2	1	—	2	2	1	2	2	20—6.6%
4th Year	5th Year	6th Year	7th Year	8th Year	9th Year	10th Year	11th Year	Total from Third Year Onward				
7	3	1	—	1	—	—	1	13—4.2%				

B. YOUNG. TOTAL RECOVERIES, 271.

1	2	3	4	5	6	7	8	9	10	11	12	First Year Total
16	26	40	83	34	16	18	3	1	—	—	2	239—88.2%
13	14	15	16	17	18	19	20	21	22	23	24	Second Year Total
2	4	2	4	1	1	—	2	3	1	—	—	20—7.4%
25	26	27	28	29	30	31	32	33	34	35	36	Third Year Total
—	1	1	—	1	1	1	—	—	—	—	—	5—1.8%
4th Year	5th Year	6th Year	7th Year	8th Year	9th Year	10th Year	11th Year	Total from Third Year Onward				
3	4	—	—	—	—	—	—	7—2.6%				

C. YOUNG HAND REARED. TOTAL RECOVERIES, 557.

1	2	3	4	5	6	7	8	9	10	11	12	First Year Total
1	153	6	45	142	2	146	1	—	—	—	1	497—89.2%
13	14	15	16	17	18	19	20	21	22	23	24	Second Year Total
—	1	1	29	28	—	—	—	—	1	—	—	60—10.8%
25	26	27	28	29	30	31	32	33	34	35	36	Third Year Total
—	—	—	—	—	—	—	—	—	—	—	—	0—0.0%
4th Year	5th Year	6th Year	7th Year	8th Year	9th Year	10th Year	11th Year	Total from Third Year Onward				
—	—	—	—	—	—	—	—	0—0.0%				

D. ALL YOUNG B & C ABOVE COMBINED, 828.

1	2	3	4	5	6	7	8	9	10	11	12	<i>First Year Total</i>
17	179	46	128	176	18	164	4	1	-	-	3	736—89.0%
13	14	15	16	17	18	19	20	21	22	23	24	<i>Second Year Total</i>
2	5	3	33	29	1	-	2	3	2	-	-	80—9.6%
25	26	27	28	29	30	31	32	33	34	35	36	<i>Third Year Total</i>
-	1	1	-	1	1	1	-	-	-	-	-	5—0.6%
<i>4th</i>	<i>5th</i>	<i>6th</i>	<i>7th</i>	<i>8th</i>	<i>9th</i>	<i>10th</i>	<i>11th</i>					<i>Total from Third</i>
<i>Year</i>	<i>Year</i>	<i>Year</i>	<i>Year</i>	<i>Year</i>	<i>Year</i>	<i>Year</i>	<i>Year</i>	<i>Year</i>	<i>Year</i>	<i>Year</i>	<i>Year</i>	<i>Year Onward</i>
3	4	-	-	-	-	-	-	-	-	-	-	7—0.8%

SUMMARY.

Ringling recoveries of 305 adult Mallards showed that 65.3% died during the first year after ringling, 23.9% during the second year, 6.6% during the third year and 4.2% during subsequent years. The average length of further survival from the date of ringling was 1 year and 2 months.

Of 828 Mallards ringling as young, 89% died during the first year after ringling, 9.6% during the second year, 0.6% during the third year and 0.8% during succeeding years. The average period of survival was 4.5 months after ringling.

This mortality is almost entirely that due to shooting.

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AGGRESSIVE DISPLAY OF THE OYSTER-CATCHER

(Studied by means of Stuffed Specimens and a Mirror)

BY

GEORGE EDWARDS, ERIC HOSKING AND STUART SMITH.

(Plates 31-40.)

1. METHOD OF STUDY.

FOR studying the aggressive displays of the Oyster-catcher (*Hæmatopus ostralegus occidentalis*) we used methods similar to those we employed for the Ringed Plover (*Charadrius hiaticula*), which were described in *British Birds*, Vol. xl, 1947, pp. 12-19.

We found an Oyster-catcher's nest on a shingle strip beside a Scottish burn, in the Cairngorm country, and erected and moved into position the necessary hides before starting to work the birds.

As before, two observers were in the tents for close-range observation and photography, whilst the third was hidden at a distance for wide-range observation and to be available for arranging the stuffed bird or mirror.

As with the Ringed Plover, differentiation of the sexes was based on brilliance of iris, beak, and leg colouration, and general plumage brightness, and the words *cock* and *hen* are thus used with some reservation. The photographs reproduced are by Hosking (Figs. 2 to 15 inclusive) and Smith (Figs. 1, 16, 17). Edwards took a ciné film of part of the display, which helped considerably in filling in gaps in the recorded notes.

2. EXPERIMENTAL.

(a) *The Stuffed Bird on the Ground.*

WE started to work the pair on May 26th, at 2.0 p.m. The dummy bird was firmly erected about a yard to the north of the nest, the wooden base being covered with stones. The hen Oyster-catcher returned to the nest very soon after we had settled down, approaching by the usual crouched run. She came to within about 6 yards of the stuffed bird, stopped suddenly, and tensed herself. She then called quietly once or twice with a low clucking note "klock, klock, klock" and then loudly with the typical call "klee-eep, klee-eep". The cock bird, who was feeding on the pasture on the other side of the burn, at once flew up and dropped at her side.

Both birds then approached the dummy with a typical "piping ceremony". In this, the birds ran forward with lowered heads, beaks open and pointing more or less vertically downwards, and wings held with the carpal joint pushed forward, giving the appearance of "hunched shoulders" (Figs. 1 and 2). The notes uttered started with the typical "klee-eep, klee-eep", gathered speed and dropped in pitch, and terminated with a fine prolonged trill. As far as we could judge, after seeing many such piping approaches, they differed in no particular from the piping ceremonies associated with the nuptial display of the Oyster-catcher.

When the birds reached a distance of about a foot from the dummy, the cock stopped and continued the pipe. The hen however, after standing tensely beside the dummy for a moment, rushed at it, and with wings spread thrust her beak up to half its length into the nape of the dummy (Fig. 3). She tore some of the stuffing from inside and tossed it to one side. The attack was then switched to the crown and head of the dummy, though the method was the same; a quick rush with raised wings followed by a violent thrust of the beak into the dummy (Fig. 4). Sometimes the attacking bird seized the dummy by the neck or by the base of its bill and held on tightly without moving for up to 10 seconds at a time. This looked very incongruous, the battered, and by this time limp, dummy contrasting with the tense excited Oyster-catcher, with its red eyes flashing.

There followed another piping approach, and this time the hen seized the dummy's tail and tore it from its body, together with a large wad of cotton wool stuffing (Fig. 5). She then ran to the burn, dropped tail and stuffing into the water, and proceeded to souse her bill and head thoroughly in the stream. There followed a period of bathing, in which the hen was joined by the cock.

During all this time, the cock did no attacking whatever, but interspersed his piping displays with the usual reactions of waders to nervous tension. He bobbed and jerked in the manner of Redshank (*Tringa totanus*), "false-brooded" by crouching in any convenient depression near by, "false-preened", indulged in stone, twig and grass tossing, and, most interesting of all, frequently adopted an attitude which we have termed the "false sleeping" attitude, and which was also such a feature of the posturing before the mirror (*vide (d) infra*). In this the bird tucks its beak beneath the scapular feathers, but its whole attitude is one of tension (Fig. 6). The eye is wide open and the body, and especially the legs, tense. We never observed the relaxed stance, with one leg drawn up, which characterizes the true sleeping attitude of many waders. In addition, the cock several times gave "lure displays" of the "injury-feigning" type, creeping away from the dummy with wings dragging and depressed and tail fanned (Fig. 7).

During periods when the hen was not attacking or seemed uncertain what to do next, she also tossed grasses and stones (Fig. 8.) and bobbed and jerked.

The stuffed bird was by now in a desperate state, and reactions to it by both Oyster-catchers were dying down, so much so that the hen came to the eggs to incubate, though she appeared far from easy and ran to the remains of the dummy once or twice for a half-hearted attack.

We now abandoned our experiments for the day, and proceeded to fish feathers and stuffing from the burn and retrieve what we could from among the shingle. Edwards spent the evening in reconstructing the stuffed bird.

(b) *The Stuffed Bird Elevated.*

NEXT day, the dummy was nailed by its base to a stout post about 2 feet high, which was firmly erected at the back of the nest. When the hen bird returned to the nest, she walked past the post and went straight to the eggs and started to incubate them. She even went to sleep on the nest. When, however, one of us made a slight noise inside one of the hides, she looked up suddenly and saw the elevated dummy for the first time. As before, her first reaction was an urgent call to the cock ("klee-eep" note) and he immediately joined her. There was a typical piping ceremony, and the hen bird then flew up at the dummy in a series of attacks. In these she flew at the dummy with outstretched head and lowered legs, driving her beak right into the stuffed bird and very soon knocking it completely to one side (Fig. 9). She then continued to attack from below, leaping up with raised wings and tearing at the dummy's breast (Fig. 10). During this time, the cock bird again did no active attacking, but ran round piping and bobbing, and giving another "injury-feigning" display. The dummy was soon in a desperate state again, so we emerged from our hides and collected the remains. Edwards again spent the evening doing repairs.

(c) *The Stuffed Bird Suspended.*

As a final trial with the dummy, we decided, on the suggestion of Edwards, to try to give it greater "animation" by suspending it from a wire gallows, so that it swung just clear of the ground. This was done, and by an interesting chance, it was the cock Oyster-catcher who returned first to the nest. On seeing the dummy, he called at once "klee-eep, klee-eep", then with a sharp chipping note "kic, kic, kic", but did not pipe or trill and, significantly, made no attack whatever. For three-quarters of an hour he mouched around, calling from time to time, but did not come to the eggs. The hen bird put in no appearance during this period, but then suddenly returned, and at once both birds performed a piping display at the dummy. There was no immediate attack by the hen, but considerable trilling and piping and much stone-tossing.

Finally the hen bird made a series of sharp attacks on the dummy, with wings raised and sometimes rapidly flapped (Fig. 11). As the dummy swung back each time, the hen sprang nervously away with raised wings or stood and regarded the swinging bird from a crouched attitude with a suspicious sideways glance. Attacks duplicated in type those on the grounded dummy, but were more vigorous, and more use was made of elevated wings in them. In several attacks, the bill or neck were seized and held tightly for a time without movement. This seizing and holding of the dummy's beak without movement was a constantly recurring feature of the attacks (Fig. 12).

After ripping the neck-feathers off, the hen ran to the burn and dropped them in, and then proceeded to bathe for about 10 minutes, in which she was joined by the cock bird. On returning, the hen bird made a few desultory attacks on what remained of the stuffed bird and then, as reaction to the dummy diminished, went to the eggs and incubated (Fig. 13).

The dummy being now past repair, we decided to try reactions at a mirror.

(d) *Reactions at a Mirror.*

A mirror, approximately 2 ft. 6 ins. by 2 ft. in dimensions, was erected in a vertical position near the nest. The hen Oyster-catcher returned and was about to settle on the eggs when she saw her mirror-image. Reaction then followed the same pattern as at the dummy; there was the usual call to the cock and a typical piping approach until the mirror-image disappeared from view at the edge of the mirror. After a moment's indecision the hen bird made as though to return to the eggs, then, seeing the reappearing image, returned to the mirror. She then started to walk in a tense, stealthy manner along the mirror, intently regarding the image all the time (Fig. 14). From time to time she would stop, face inwards, and deliver a sharp blow at the image, her beak hitting the glass with a loud "thwack" (Fig. 15). When the end of the mirror was reached, the bird would spring around to the back to see where the adversary had gone to (Fig. 16). A frequent attitude at the mirror was the interesting "false-sleeping" posture which is shown in Fig. 17. In assuming this, the bird "froze" as soon as the mirror-image appeared, and immediately tucked its beak into the scapular feathers. The eye remained intently open, and the whole attitude one of considerable nervous tension. During this time we saw little reaction in the cock bird. He kept well behind the mirror and thus could not appreciate the reason for the hen's reactions. He frequently ran away towards his feeding ground, but returned at once when the hen piped.

(e) *Reactions to a Stuffed Stoat, a Stuffed Sandpiper, and a Stuffed Golden Plover.*

WE had with us a Stoat (*Mustela erminea*) stuffed in a fearsome attitude in which the fangs were bared and one foot raised. When this was placed near the Oyster-catchers' nest the birds showed signs of great nervousness, but no tendency to indulge in piping displays or to attack in any way. Reaction took the form of walking slowly round the Stoat at a safe distance of about 4 feet, accompanied by a low-pitched "pic, pic" note. There was some stone-tossing.

We then substituted a stuffed Golden Plover (*Pluvialis apricaria*) in winter plumage, placing it very close to the nest, at 3 feet distance. Both Oyster-catchers completely disregarded

this bird, even when they were both present at the periods of nest-relief. Using a stuffed Common Sandpiper (*Actitis hypoleucos*), also at 3 feet distance, we got evidence that the hen Oyster-catcher knew that the bird was there, for she would approach with slightly outstretched neck, but after looking at the bird for a moment would go straight to the eggs without further reaction.

3. DISCUSSION.

The displays of the Oyster-catcher, both nuptial and aggressive, have been studied by a number of workers, and the relevant literature up to 1925 was collected by Huxley in his paper "Studies on the Courtship and Sexual Life of Birds, V. The Oyster-catcher" (*Ibis*, 1925, pp. 868-897), and need not be reviewed here. Since that time, Dirckson (*Journ. f. Orn.*, 1932, pp. 439-447; and 452-458) and D. Nethersole-Thompson (M.S. notes quoted in *The Handbook of British Birds*, Vol. iv, p. 416) have added to our knowledge of the nuptial display, whilst K. Williamson has dealt with the aggressive display in "The Behaviour Pattern of the Western Oyster-catcher in Defence of Nests and Young" (*Ibis*, 1943, pp. 486-490). In addition, a most valuable and comprehensive paper has recently appeared which describes a study of the Oyster-catcher in Holland by Makkink—"Contribution to the knowledge of the behaviour of the Oyster-catcher" (*Ardea*, 1942, Vol. xxxi, pp. 23-75).

The reactions we witnessed may conveniently be discussed under the headings (a) piping ceremony; (b) methods of attack, including approach and actual blows; (c) the false-sleeping attitude; (d) substitute activities such as false-brooding, ceremonial bathing, stone- and twig-throwing, false-preening.

(a) *The Piping Ceremony.*

This is a reaction which is elicited by so many divers situations that it is difficult to explain in precise psychological terms. Huxley and Montague (*ibid*) consider that it is a general manifestation of excitement, since it may be performed by a single bird, or be an expression of hostility of one bird against another, or of a pair against another pair, or sometimes, when hostility might be expected, an extra bird is allowed to join in. In the latter case, social excitement seems to come into play.

Makkink (*ibid*) on the other hand, thinks that piping is a manifestation of sexual origin. He points out that only adults pipe, and never juveniles, whilst the piping is confined mainly to the breeding-season. Piping is not associated immediately with coition. He concludes (i) That piping is caused by a special internal impulse ("the piping impulse") which is of sexual origin, but not identical with the impulses of coition and nesting; (ii) That it is stimulated by external circumstances, viz., the presence or activity of fellow birds.



OYSTER-CATCHER.

FIG. 1. PIPING DISPLAY AT THE DUMMY BY THE PAIR.

(Dum. 1934, p. 11. See also p. 11.)



OYSTER-CATCHER.

FIG. 2. PIPING DISPLAY AT DUMMY: TYPICAL ATTITUDE.

FIG. 3. FEMALE ATTACKING NAPE OF DUMMY.

(Photographed by Eric Hosking).



OYSTER-CATCHER.

FIG. 4. FEMALE ATTACKING HEAD OF DUMMY.

FIG. 5. FEMALE CARRYING PART OF DUMMY'S TAIL.

(Photographed by Eric Hosking).



OYSTER-CATCHER.

FIG. 6. MALE IN "FALSE-SLEEPING" ATTITUDE.

FIG. 7. MALE (RIGHT) GIVING "LURE-DISPLAY."

(*Photographed by Eric Hosking.*)



OYSTER-CATCHER.

FIG. 8. FEMALE TOSSING GRASS AS NERVOUS REACTION.

FIG. 9. FEMALE IN FLIGHT ATTACK ON ELEVATED DUMMY.

(Photographed by Eric Hosking).



OYSTER-CATCHER.

FIG. 10. FEMALE ATTACKING DUMMY FROM BELOW.

(*Photographed by Eric Hosking.*)

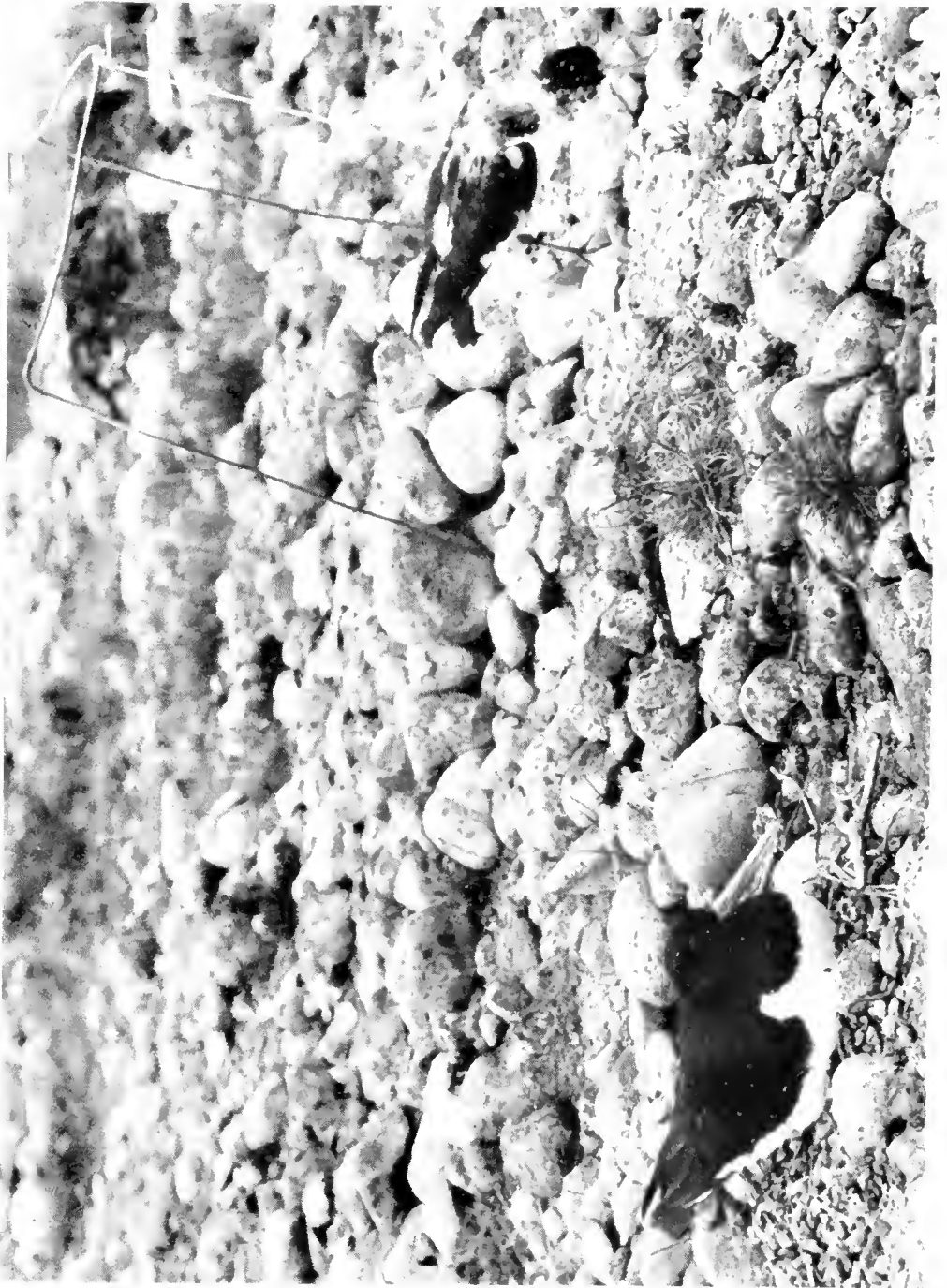


OYSTER-CATCHER.

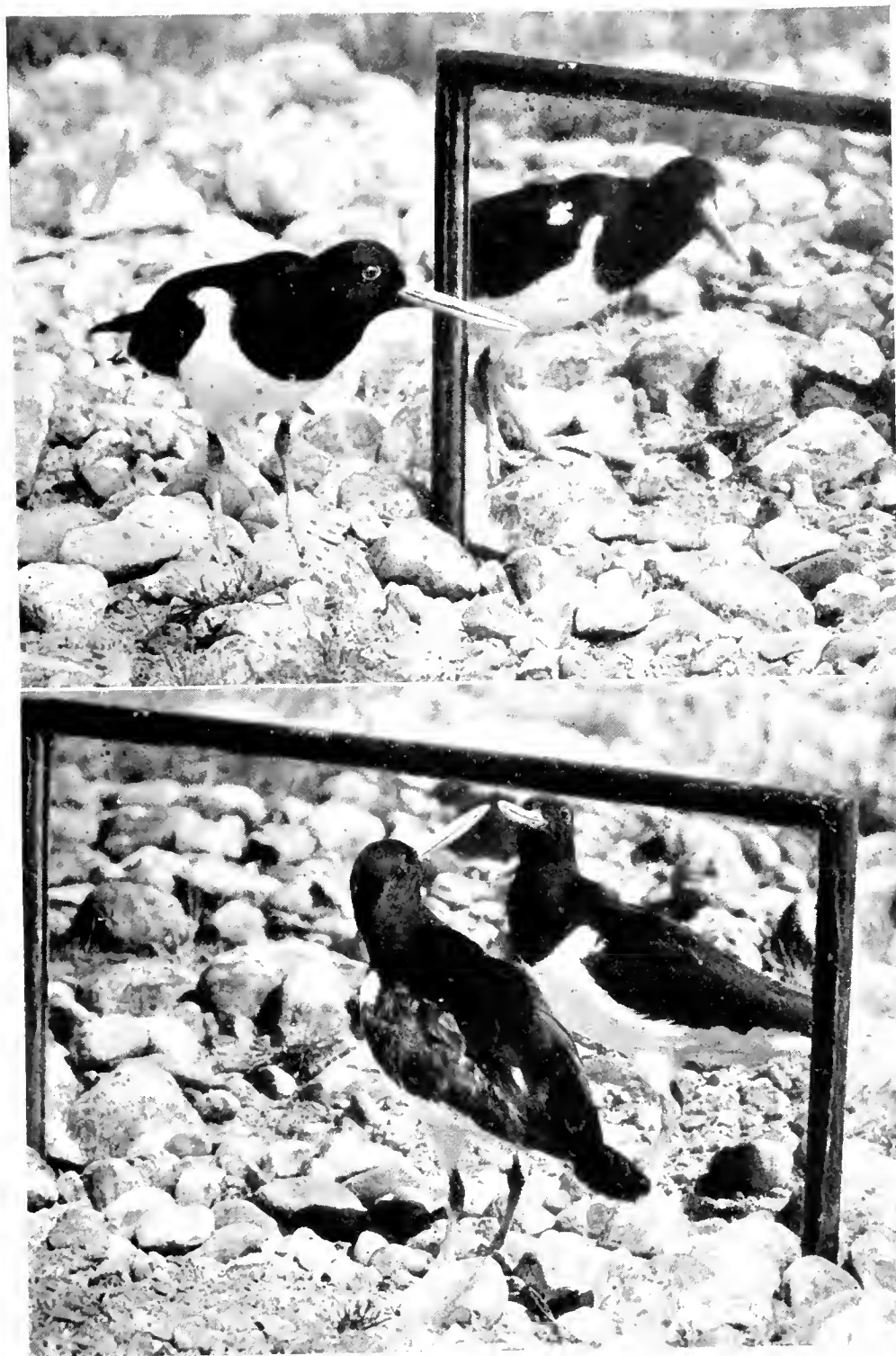
FIG. 11. FEMALE ATTACKING SUSPENDED DUMMY.

FIG. 12. FEMALE HOLDING DUMMY'S BEAK.

(Photographed by Eric Hosking).



OYSTERCATCHER.
FIG. 13. FEMALE INCUBATING, FOLLOWING DIMINISHED REACTION.
(Photographed by Eric Hosking)



OYSTER-CATCHER.

- FIG. 14. FEMALE LOOKING AT MIRROR-IMAGE.
FIG. 15. FEMALE PECKING AT MIRROR-IMAGE.

(Photographed by Eric Hosking).



OYSTER-CATCHER.

FIG. 16. FEMALE LOOKING FOR ADVERSARY BEHIND MIRROR.

FIG. 17. FEMALE IN "FALSE-SLEEPING" POSTURE BEFORE MIRROR-IMAGE.

(Photographed by Stuart Smith).

Piping is the most important *cause* of the assembling of Oyster-catchers, and Makkink points out that incubating birds will even leave their eggs to join a piping group.

The piping we witnessed was, of course, always employed as a manifestation of hostility, and this is one of its most common usages.

(b) *Methods of attack.*

Prior to each attack upon both dummy and "mirror-image", there was a characteristic approach. This we have described above as a tense, stealthy walk, in which the body is attenuated, and the whole attitude one of nervous tension. Makkink describes this attitude, which is always a prelude to hostilities, as the diplomatist attitude" because ". . . they look like diplomats in tail coats who cautiously approach to find out each others' intentions! The tips of the wings are crossed over the rump, the neck stretched out, while the bill points obliquely upwards. The bird then steps slowly round its adversary, in a ridiculous and solemn manner."

As to the actual fighting, Makkink agrees in every particular with our observations. He points out that Oyster-catchers fight with the bill, head on, hacking away at an opponent. "They hew like woodpeckers" he says. The wings are clapped violently. Often the birds seize each other's bills, and whirl round with fluttering wings.

Makkink contrasts this with the method of fighting used by the Avocet (*Recurvirostra avosetta*), which, having a weak bill, fights with its wings.

The rather remarkable habit of gripping the dummy and holding on finds a counterpart in Makkink's observation, quoted above, that the birds seize each other's bills, and also in Huxley's observations when ". . . one bird seized another's wing and held on for a considerable time, while dragged round by the bird he had seized."

(c) *The "false-sleeping" attitude.*

This remarkable attitude must have been witnessed by many observers, but until Makkink's paper, few seem to have recorded it, and those who did failed to recognize its significance. This is most probably due to the fact that the attitude is easily mistaken for genuine sleeping. Huxley no doubt saw it, for he says, "Once a hen Oyster-catcher immediately after copulation was seen to put her head under her wing and dose." Or again, "A pair *sleeping* (our italics). They wake up and begin a mutual piping performance."

Similarly Coward (*Bird and other Nature Problems*, London, 1931) describes how Oyster-catchers "will stand for hours within sight of the spot where the young are crouching and even pretend to sleep, tucking their blunt, long, orange-red bills into their scapulars, but keeping an eye open all the time". Whilst

disagreeing with Coward's interpretation, we must point out that he was the first, as far as we know, to recognize the false-sleeping attitude.

Makkink gives considerable space to the attitude, which he calls the "pseudo-sleeping" attitude (=P.S.A.). This is perhaps a better term than our "false-sleeping". He considers that the P.S.A. occurs when there is emotional conflict within the bird, and that when the two opposing emotional tensions happen to attain a balanced equilibrium, then the bird adopts the P.S.A. The attitude often occurs just before an attack is launched, and may be adopted by both birds. Hostile birds either attack, or if fear gains the upper hand, one will fly away. Now if neither impulse (attack or fear) is sufficiently strong to make the birds do either, then they withdraw themselves from action by adopting a sleeping attitude, in which they ordinarily feel safe. Pseudo-sleeping therefore occurs when the impulse for action is too weak.

Kortlandt (1940, *Tijdschr. v. Psychologie*), however, considers the P.S.A. is a substitute activity occurring when an inhibiting factor is strong enough to prevent the impulse from following its normal channel. One then has two opposing and mounting emotional "potentials", and "sparking-over" occurs at a critical level, leading to the appearance of an attitude, or behaviour pattern, belonging essentially to another element of the behaviour complex. Timbergen ("Die Übersprungbewegung", 1940, *Zeit. für Tierpsychologie*) attributes substitute activities (Übersprungbewegung) to one of three internal situations:—

- (i) to a conflict between antagonistic impulses;
 - (ii) to the sudden attainment of a goal;
- and (iii) to the lacking of a stimulus which should properly occur.

The difference between Makkink and Kortlandt lies in the fact that the former does not agree that the pseudo-sleeping attitude can be a true "substitute activity", as its very nature prevents it from helping the bird "to run down", since no action takes place. We feel, however, that it is quite possible for emotional tension to be dissipated merely through the forced assumption by the bird of a resting attitude.

Makkink has also recorded the P.S.A. as occurring in the Avocet (*Recurvirostra avosetta*), and Darling and Morley (*British Birds*, Vol. xxxvii, p. 58) have noted what may be a significant observation in this respect, that Common Sandpipers (*Actitis hypoleucos*) interspersed their normal nuptial displays with periods of apparent repose "wherein the birds stood still one or two feet apart, with subdued trilling, and at intervals of one-half to one second, raised and lowered the nictitating membrane. Quite often the beak was tucked into the scapulars as if in the posture of sleep, with the membrane worked as above".

It may well be that the "pseudo-sleeping" attitude is more widely employed in displays, especially amongst the Charadrii, than is at present realized, and further work on this interesting posture is needed.

(d) *Substitute Activities (other than pseudo-sleeping).*

Huxley was one of the first to draw attention to the fact that there is often complete identity of posturing and reaction, for both hostility and sexual display. Thus besides the piping ceremony, he instances bathing, and what he terms "pecking at the ground" as evidences of courtship activities, and we may recall that bathing by our pair of Oyster-catchers sometimes followed a prolonged attack on the dummy, whilst the throwing of stones, grasses, etc., was an ever present behaviour pattern during our experiments.

It is often difficult to decide to which type of display a given pattern of behaviour properly belongs. Stone and twig throwing are normally present in both nuptial and aggressive displays and at nest-reliefs, but will appear as a "substitute activity" when the birds become confused or when normal outlet for emotional tension is blocked. In the same way, false-brooding occurs as a substitute activity when uncertainty arises within the bird's mental framework. It occurs commonly whenever an antagonistic impulse prevents normal brooding, and so we witnessed it when the dummy was too near to the nest, and especially in the cock when he became confused by the "unnatural" behaviour of the dummy in refusing to be driven away.

Finally, attention must be drawn to the fact that the lack of aggressiveness on the part of the cock Oyster-catcher compared with the hen, is similar to the behaviour of the pair of Ringed Plovers we described in our previous paper, for although the cock Ringed Plover did a certain amount of pecking at the dummy's feet, he was far less aggressive than the hen bird, and showed diminished reaction much more rapidly than she did. In addition, as in the case of the cock Oyster-catcher, he readily reverted to lure-displays of the "injury-feigning" type, a thing we did not witness in either hen bird.

Our observations duplicate in many respects those of Williamson (*vide supra*) on the Oyster-catcher in the Faeroes, where he invoked aggressive behaviour against his person (which involved actual striking by the birds against his shoulder), lure-display and false-brooding.

We are again much indebted to Mr. Reg. Wagstaffe, Keeper of the Yorkshire Museum, for the loan of stuffed specimens under the British Trust for Ornithology Study-Material Service; to Mr. K. Williamson for helpful discussion; and to Mr. W. B. Alexander, Librarian of the Edward Grey Institute, Oxford, for lending us some of the relevant literature.

NOTES.

"SMOKE-BATHING" OF STARLING AND OF HERRING-
AND BLACK-HEADED GULLS.

FURTHER to the correspondence relating to "Smoke-bathing" (*antea*, Vol. xl, p. 340, Vol. xli, p. 83), I also have frequently noticed Starlings (*Sturnus v. vulgaris*) indulging in this habit in the winter months. I also have a note in my diary dated February 14th, 1947, recording an immature Herring-Gull (*Larus a. argentatus*) basking on a chimney-pot in surprisingly thick smoke. The bird was standing on one leg very obviously enjoying itself in smoke which at times completely obscured it from view. The weather at that time was extremely cold and still.

M. WHITE.

A NOTE on the "smoke-bathing" of the Starling (*Sturnus v. vulgaris*) (*antea*, Vol. xl, p. 340, also Jackdaw, *antea*, Vol. xli, p. 83), prompts me to record similar behaviour in the Herring-Gull (*Larus a. argentatus*) and Black-headed Gull (*Larus r. ridibundus*). On a number of occasions I have observed single Herring-Gulls perched on the chimney-pots of houses, from which smoke was being emitted, and in one instance I noted that the abdomen of one bird was in the line of smoke. For a number of years I have observed in the winter months quite a number of both Herring- and Black-headed Gulls on the wooden chimneys of the Locomotive Depot at Laira, Plymouth. There are almost always a number of locomotives in the shed, and although smoke was not emitted from all the chimneys at the times of observation heat was certainly rising from them. Many of the birds were preening. So far as I can remember all my observations at Laira were made in the mornings.

It may be that weak acids have a stimulating effect on the skin, and that this is agreeable to the birds, but in the case of the gulls on Laira Locomotive Depot the sulphur which rises in a greater volume of smoke can hardly be called weak.

C. J. STEVENS.

A DISPLAY FLIGHT OF THE SKY-LARK.

SINCE the beginning of 1944 I have been engaged on a study of the Sky-Lark (*Alauda a. arvensis*) which has taken me at least once a week into fields frequented by these birds. During the last three years I have seen many times a form of display flight which has not been fully described hitherto. All observations have been made in the Harmondsworth district of Middlesex.

The essence of this flight, which involves two birds, is a frenzied "chase" carried out at low altitudes (20 to 30 feet). It begins suddenly and apparently simultaneously in both birds. At the beginning of the chase the distance between the birds is reduced to two or three feet and is then maintained at that; at the same time the speed of flight is very much increased. The birds twist

and turn together so sharply and frequently that the whole flight takes place over a small area of ground. It ends as suddenly as it began; as if by mutual consent, the birds return to their normal behaviour.

The chase has been observed in several contexts, but the general form of it is always the same, though its intensity and duration depend on the season.

In March 1944, it followed a typical courtship display; both birds suddenly stopped the wing-drooping and fluttering display and began the flight, the female in front of the male, who sang loudly throughout the chase. This is the only occasion on which I have observed song to accompany the chase. After about 30 seconds the male began a normal song flight and the female returned to her clod of earth.

Later in the breeding-season it frequently occurs between the male and female without (I believe) the preliminary, typical courtship. Often the male begins a normal song flight at the end of the chase.

Male birds in adjoining territories also indulge in this chase. Usually one bird ends with a typical song flight, but I have not been able to see if it is always the second bird which sings, though it often is. Sometimes both birds sing afterwards.

In the autumn song period when feeding flocks are moving about the fields, chases have been observed very frequently; three times in ten minutes on October 8th, 1944. The latest date on which I have recorded it is October 15th. At this time of year the duration of the flight is reduced to 5 to 10 seconds. If the two birds are part of a moving flock they do not chase over one small patch of ground, but keep up with the flock.

What has struck me particularly is the similarity between all the flights and chases, whatever the time of year. In summer and autumn they are less frenzied than in spring, but only in that the chase lasts less time and that song plays a progressively smaller part in it. The suddenness with which the flights begin and end is also a common feature to all of them. R. B. CLARK.

[The chases early in the season are clearly what Eliot Howard (*Introduction to the Study of Bird Behaviour*) called the "sexual flight" in this and other passerines and regarded as the form of sexual behaviour characteristic of the phase of the breeding-season before the female is physiologically ready for coition. Since a chase involves no very specialized form of behaviour it might be argued that chases of a strictly sexual character and those of (possibly) territorial origin or originating in flocks perhaps as a mere sort of play would in the nature of the case look much the same, although quite different in origin. We are still not sure that this is not the most logical way of looking at the matter, though the view of Mr. Clark, with whom we have discussed the subject, is rather that the chases

are fundamentally the same in nature and mechanism at all seasons and that their functional part in the sexual cycle is incidental and secondary rather than primary. His observations certainly lend some colour to this view, but we think further study would be necessary in order to establish it at all securely.—Eds.]

FIRECREST IN CHESHIRE.

DURING the latter half of October and the first week of November, 1946, there was present in a wooded valley in north-east Cheshire an unusually large number of transient Goldcrests (*Regulus regulus*). On November 3rd among them I observed a Firecrest (*R. ignicapillus*). It was immediately conspicuous by the more emphatic contrast of darker olive-green upper-parts with paler, almost white, under-parts. Closer observation revealed the black lores, the black continuing in a narrow band round the eye and backwards merging into a darkish olive patch on the ear-coverts, and a very pronounced white superciliary stripe bounded above by a black streak. Although the unusual numbers of Goldcrests persisted many days afterwards no further Firecrest was seen.

This occurrence is judged worthy of record since the only other recorded Cheshire occurrence seems to be that mentioned in the Lancashire and Cheshire Fauna Committee's Twelfth Report (1925) and reference to this was omitted from the later (1930) *Check List of the Fauna of Lancashire and Cheshire*. Occurrences of the Firecrest in the north-west of England generally are relatively few.

N. W. CUSA.

INCUBATION AND FLEDGING OF BLACK REDSTART.

REFERRING to Mr. R. Cooke's valuable contribution (*antea*, p. 46) on the Black Redstart (*Phœnicurus ochrurus gibraltariensis*) the following may have some interest in connexion with his remarks about number of broods, incubation-period and fledging-period.

In the case of the four pairs breeding in Dover in 1946 one pair was triple-brooded, two pairs double-brooded and one pair had a single brood. In 1947 there were five pairs, of which two pairs were double-brooded and three pairs single-brooded. The incubation-period was always 13-14 days and the fledging-period 16-17 days.

One interesting event was observed in connexion with fledging when I moved a nest on the thirteenth day a few feet away from its site, which was being demolished. The young birds soon took to wing and all made good flights and perfect landings, one bird flying 90 feet in a straight, strong and level flight. It would therefore seem that the young of this species is quite able to leave the nest in 13 days, which is more near the usual time for young of this genus to fly.

G. E. TOOK.

[Two broods are normal on the Continent and three at least occasional.—Eds.]

THE "DIVING-PLAY" OF SURFACE-FEEDING DUCK.

DURING two winters I lived near the pond of a former duck-decoy, managed as a wildfowl sanctuary, in Friesland, the Netherlands. Here every day all the commoner species of surface-feeding duck could be watched at a short distance. Mallard (*Anas p. platyrhyncha*), Teal (*A. c. crecca*), Garganey (*A. querquedula*) and Shoveler (*Spatula clypeata*) were all regularly observed behaving as is described in *The Handbook of British Birds* under Mallard (Vol. iii, p. 232); "Brief splashing plunges under water may also be observed in case of parties playing and chasing one another. . . ."

In my opinion this performance should not be considered as play, and I do not think that the duck are chasing one another. For the purpose of its interpretation this behaviour should be split up into two components: (1) the rising of the duck from the water, immediately followed by its headlong plunging down into the water with wings partly closed, more or less in the way of a diving Gannet; (2) the splashing rush over the surface of the water alternating with dives. The behaviour mentioned under (1) is quite similar to the escape reaction of a duck harassed by a falcon, that under (2) closely resembles the escape reaction of a moulting duck.

When interpreted in this way these performances appear to be escape reactions carried out in the absence of a bird-of-prey. So the duck are not chasing one another, but they behave as if being chased by a bird-of-prey. Performances of this type are not uncommon among birds. The well-known aerial evolutions of Starlings and Limicolæ, for example, are also cases of escape reactions performed in the absence of a predator. Noteworthy is the dashing into cover with cries of distress as if actually harassed, regularly performed by Starlings near their roost.

A publication of the present writer on the subject (with a summary in English) will be published in the Netherlands.

POSTSCRIPT. After I had sent this note to Mr. Tucker and discussed the matter with him, I found a letter of Lorenz to Mrs. Nice, quoted by the latter (*Studies in the Life History of the Song Sparrow*, II, 1943): "Most of what you describe as frolicking are emotion-dissociated fleeing movements! The most impressive instance of such frolicking is the pre-bathing play of Anatidæ. They do every single stunt that is applied when the eagle is behind them—diving and taking wing at the very moment of emerging and taking a header from the air right under the surface, with a long under-water swim following, and last, but not least, repeated performance of Hakenschlagen—"hooks" or sudden turns. Yet apparently the duck and geese are not afraid, e.g., the whole performance is really dissociated from the emotion which is correlated with all these instinctive actions when they are used in earnest."

T. LEBRET.

FULMAR EJECTING OIL IN DELIBERATE ATTACK.

IN July, 1943, I was climbing casually up a cliff at the Knab, Lerwick, Shetland, when I approached a sitting Fulmar (*Fulmarus g. glacialis*) from below. The bird was on a fairly wide ledge; we were both surprised and the Fulmar left the nest and flew away immediately without any demonstration. As I climbed upwards past the nest a fair quantity of oil splashed on to the rock slightly above my right shoulder and I turned carefully around to see the bird in orbit before returning to the attack, this time a "dry run". The swoops, which brought the bird to within two yards of my head, were repeated some half-dozen times, and my companion, who was two or three yards below me, reported that the ejaculation was made at a similar distance, the oil having the added momentum given by the swoop.

There was no doubt about the deliberateness of the attack and the view that the ejaculation is a defensive reflex could not be held true in this case. The egg was practically fresh.

Subsequent enquiry, on Fair Isle among other places, has elicited no account of similar behaviour in the species.

ALFRED HAZELWOOD.

BLACK TERNS IN NORTH KENT.

IN 1939 Sibson (*antea*, Vol. xxxii, pp. 304-5) summarized occurrences of Black Terns (*Chlidonias n. niger*) in the Thames estuary. He considered that the first autumn migrants reached the Thames in the first half of July and that maximum numbers were attained in August and the first half of September. The largest numbers quoted were about 40 on August 2nd, 1930, 30 on September 12th, 1936, and 30-40 on August 9th, 1938. Hollom (*antea*, Vol. xxxii, p. 76) had said that a number of this species appeared to work up the Thames, while Ticehurst in 1909 (*History of the Birds of Kent*, p. 491) referred to their appearance in the Thames and Medway in autumn as tolerably regular. Alexander (*antea*, Vol. xxxii, pp. 343-4) also reported about 20 seen opposite Tilbury on August 20th, 1938.

While it is thus normal for Black Terns to frequent the Thames estuary in autumn, there were exceptional numbers present in the autumn of 1946 following on the unusually large spring passage observed in England in the spring of that year. On August 25th counts were made by E. R. Parrinder and C. B. Ashby over periods of one hour about two hours before and three hours after high tide. The first count gave 33 Black Terns flying up the river in midstream and the second totalled 107. On September 7th, F. M. Firth and H. F. Greenfield reported over 100 in a period of two hours, while on the 8th Parrinder and E. M. Cawkell obtained a count of 30 in a quarter of an hour at approximately full tide. Smaller numbers continued going upstream on the ebb. On the 14th and 15th counts were only

made over short periods, but the impression was gained that numbers had not decreased, and at one time 17 were seen in the air at once.

It is not the intention at present to discuss the significance of tern movements in the Thames, but figures given relate almost entirely to an up-river movement usually in company with considerably greater numbers of Common/Arctic Terns (*Sterna hirundo/macrura*). A few birds were seen going down-stream, but only a very small number in comparison, and the relation of the movement to time of day and tide is not yet clear. Further observations on this point are still required especially from the Essex shore, as Glegg (*History of the Birds of Essex*, p. 248) makes only one mention of Black Terns being seen from that shore, namely "several" off East Tilbury on September 11th, 1927 (cf. also "The Thames as a Bird Migration Route", *London Nat.*, 1929, p. 9).

On the same day, August 25th, as the largest counts were obtained in the area of Egypt Bay, where 107 passed upstream between 1450 and 1550 hours, Gillham in the late afternoon saw a pack of Black Terns flying in close formation off the shore at Leysdown, Sheppey. After flying to and fro at a fair height over the sea parallel to the shore they peeled off into a long ribbon formation and alighted on the shore. Several counts gave a total of 123, of which about 20 were in full summer plumage. By the following day they had gone. From the times it is not possible for them to have been the same birds as those off Egypt Bay, nor do the 107 counted there represent the whole number, for although counts were confined to two one-hour periods the movement was far from restricted to those times. It is evident, therefore, that in the autumn of 1946 there must at times have been several hundreds of this species present in the estuary.

E. H. GILLHAM AND R. C. HOMES.

KENTISH PLOVER IN DEVON IN WINTER.

IN early January, 1948, a Kentish Plover (*Leucopoliis a. alexandrinus*), evidently the same bird, was observed independently on opposite sides of the Exe estuary by the undersigned observers. The following description is compiled from the observations of both observers: Noticeably smaller than accompanying Ringed Plover (*Charadrius h. hiaticula*). Upper-parts a lighter, sandier brown than Ringed Plover with crown a brighter brown than the back; forehead white with no black between this and the brown crown; an inconspicuous pale stripe extending from forehead over eye; a dusky black line from base of bill through eye. Under-parts white, extending as white collar round neck. Pectoral band incomplete, represented by dark patch on either side of white breast. Bill and legs black. R.G.A. also noticed a narrow white bar on the spread wing and a broad white border to the otherwise

dark tail, very clearly seen as the bird rose in flight. Its movements were more rapid and erratic than those of accompanying Ringed Plovers. The absence of any black between the white forehead and brown crown seems to indicate an adult female or possibly a first winter immature bird.

The bird was seen by M.M.H. on January 2nd, in both morning and afternoon, on the shingle near Woodbury Road Station. It was examined with good field-glasses and a telescope at about 30 yards range. It was seen again on January 7th and 8th resting at high tide on the same spit of shingle where it was first seen. It was first seen by R.G.A. in company with Major K. Windeatt, Mr. F. R. Smith and Miss Smith, on January 4th, and it was observed subsequently on a number of occasions up to March 13th, frequently at a distance of about 25 yards.

R. G. ADAMS AND MARGARET M. HUTCHINSON.

BLACK-WINGED STILT IN LANCASHIRE IN. 1944.

ON October 28th, 1944, I observed a Black-winged Stilt (*Himantopus h. himantopus*) on the marshy ground at the foot of Burnslack Fell near Chipping, Lancashire, at a distance of about 20 miles from the sea. The bird was standing on the remains of an old wooden hut and was remarkably tame. I approached it to within 15 yards, and from there examined it through binoculars, so as to be doubly sure of its identity. It remained quite motionless except for an occasional glance to the left or right, and I left it in the same position after several minutes' observation.

To preclude any misunderstanding I may add that the date was definitely 1944 as above stated and not 1945, the year in which a small "invasion" of Black-winged Stilts occurred and breeding took place at Nottingham.

JOHN A. WHITTAKER.

GREAT BLACK-BACKED GULL DROPPING PREY.

IN *British Birds*, Vol. xl, p. 31, a Great Black-backed Gull (*Larus marinus*) is recorded as dropping a rat several times in succession. There are two records of similar occurrences in the Skokholm Bird Observatory file. On June 13th, 1947, the Hon. Mrs. N. O. Richards saw a Great Black-backed Gull drop a live, half-grown Rabbit into the sea, alight beside it, duck it until apparently lifeless, then eviscerate and eat it. David Jenkins saw the gull drop a Puffin (*Fratercula arctica grabæ*) three times into the water before eating it. "Outpost" in an article "Field Study on Skokholm" in the *British Caver*, Vol. xv, p. 58, says that the Great Black-backed Gull dropping the Puffin is a "common sight," and suggests that the Puffin is first stunned and then dropped until lifeless. This seems unlikely, as the auks, after they have taken off badly from a cliff, often strike rocks at full speed without apparent damage.

P. J. CONDER.

LATE YELLOW WAGTAILS IN SUSSEX.—Mr. I. J. Ferguson Lees states that he and Mr. G. M. Moll found about five Yellow Wagtails (*Motacilla flava flavissima*) on Thorney Island, Sussex, on October 5th, 1947. On October 19th, Messrs. Lees, J. Walpole-Bond, G. M. Moll and J. A. Smith heard and saw one other at the same place.

SPOTTED FLYCATCHER AND WILLOW-WARBLER TAKING BREAD-CRUMBS.—Mr. F. D. E. Walls reports instances of a Spotted Flycatcher (*Muscicapa s. striata*) and a Willow-Warbler (*Phylloscopus t. trochilus*) eating bread-crumbs from the ground at Kilmarnock, Ayrshire, on August 9th and 31st respectively, 1947.

AUTUMN SONG OF WILLOW-WARBLER IN WINTER QUARTERS.—*The Handbook* states with reference to autumnal song of the Willow-Warbler (*Phylloscopus trochilus*) in winter quarters that it is "recorded singing freely in Congo in October, but in many areas—e.g. Egypt—little if at all". Dr. G. Beven informs us that in South Africa this species appeared to sing regularly in November (viz. November 9th to 30th, 1941, and also heard on November 26th, 1944). In December and January no song was heard, although the birds were recorded.

UNUSUAL SITE OF HOBBY'S NEST.—With reference to Mr. H. G. Attlee's note (*antea* p. 61) Mr. Hubert E. Pounds states that on August 18th, 1934, on a Surrey heath, he found a nest of the Hobby (*Falco s. subbuteo*) containing three young nearly ready to leave. The nest, a dilapidated Carrion Crow's, was situated in a crotch at the summit of a small Scots Pine growing well out on the open moor, and was only twelve and a half feet from the ground. This fact was ascertained with the aid of a tape after the brood had flown on August 21st.

HAWFINCH AS PREY OF SPARROW-HAWK.—Further to his previous note on this subject (*antea*, Vol. xxxix, p. 191) Mr. H. E. Pounds has sent us some primaries of a Hawfinch (*Coccothraustes c. coccothraustes*) which he picked up on April 12th, 1947, at a typical Sparrow-Hawk's (*Accipiter n. nisus*) kill near a ride in a plantation of young Scots Pines on the fringe of an extensive tract of heath in south-west Surrey.

REVIEWS.

LOCAL REPORTS.

Nineteenth Report of the Devon Bird-Watching and Preservation Society, 1946.

The Devon report is as usual very well produced and surprisingly detailed. We congratulate the editorial committee on having at last abandoned the exasperating practice of treating the birds in alphabetical order, which meant that a reader wishing for information about any particular group, say waders, had to hunt about all over the report. Alphabet advocates are compensated by the provision of an index.

Of particular interest is a record of three Choughs seen at Berry Pomeroy, in the south-east of the county near Totnes, on April 6th, flying east towards the coast. A pair of Dartford Warblers, evidently breeding, were seen in East Devon in June and an immature bird in August. Two pairs of Willow-Tits were identified at different localities in North Devon, one of them definitely nesting (young reared). Montagu's Harriers were present and bred or probably bred in several localities, but it is difficult to be certain from the notes given how many different pairs are referred to; in at least one locality breeding was successful, as a juvenile was seen in June. A pair of Hen-Harriers was satisfactorily identified on June 19th, though unfortunately no definite evidence of breeding was obtained. Three Fulmars were seen at Berry Head, June 23rd. A Kite was seen at Sutcombe on several days in January and accurate particulars were provided by the observer. Another record, of a bird seen on August 18th near Widecombe, is square-bracketed, although the description given is accurate so far as it goes, while a third record, of one seen "flying towards Wales" at Dunster, West Somerset, on the surprising date of June 9th, is accepted, though no particulars are given. Other rare birds recorded are a Ruddy Sheld-Duck, possibly an escape, on the Exe Estuary in May and June, a Grey Phalarope at Melbury waterworks, September 25th, and a Red-necked Phalarope satisfactorily identified at Ilfracombe on November 18th. There are also records of Golden Oriole, Hoopoe, Wryneck (Halwill, April 14th), White-tailed Eagle, Osprey, Spoon-bill, Whooper and Bewick's Swans, Leach's Petrel, Little Gull (a West Somerset record as well as a Devon one) and many others of more or less scarce waders, waterfowl, etc. Amongst unusual dates are Sedge-Warbler on April 2nd, a Fieldfare on July 9th and 10th (no details given), Common Tern on April 5th, a very late White Wagtail, apparently satisfactorily identified at the Otter estuary on November 12th, Linnet song in November and December, and a Marsh-Tit in West Somerset carrying food to a nest on October 6th!

There are numerous records on habits and other miscellaneous points, of which we may mention: nest of Carrion Crow in pile of barbed wire, courtship-feeding of Hawfinch (not on nest), female song of Cirl Bunting, notes on a communal gathering of Blackbirds, a two clutch of Blackbird's eggs which was evidently a first laying, sustained hovering (c. 4 mins.) by Peregrine, Buzzard taking butterflies, a pink-legged Heron on the Exe estuary, March 26th, two cases of Common Sandpipers wintering, Kittiwakes in some numbers on the shore at Slapton in August-September, and a curious record of an apparently melanistic Black-necked Grebe in West Somerset on January 13th. The recorder of this last, who reported it to us at the time, was quite certain the bird was not oiled. All Dunlin records are listed under "Southern Dunlin", although many if not most of those referred to would be of the Northern race.

There are special migration notes on Willow-Warbler, Wheatear, Swallow, House-Martin, Sand-Martin and Swift, and some notes from Lundy.

South-Eastern Bird Report, being an Account of Bird-life in Hampshire, Kent, Surrey and Sussex during 1946. Edited by Ralph Whitlock.

Although this report is titled as above, the Hampshire section, reprinted from the *Hampshire Field Club Proceedings*, is in fact for 1945. It contains much valuable information, but not always sufficiently critically edited. We note that Major E. M. Cawkell and Mr. G. des Forges will in future act as sub-editors for Kent and Sussex respectively. We are sure this is a good arrangement, for no single editor can cover adequately the whole of the huge area dealt with, and local knowledge and experience may at times be important in dealing with county records.

In Surrey we are glad to note that the Dartford Warbler, which has suffered very seriously in recent years from a combination of army activities on the heaths and hard winters, was seen in at any rate one locality in January and February, 1946. Evidence of the occurrence of Bearded Tits on the Wey between Guildford and Pyrford is interesting. Over a space of ten years the

recorder, who knows the species in Norfolk, has on several occasions seen birds which he suspected of being Bearded Tits and in 1946 he "had an observation of a cock bird in May which was almost certain." However the only record claimed as definite is a second-hand one of a male stated to have been seen by a friend of the recorder, at a distance of six feet on June 6th. In a matter of such importance we are entitled to some evidence of the ornithological experience of the observer and some details about the bird. A record which would be noteworthy if properly authenticated is one of four Knots and a Curlew-Sandpiper at Unstead Farm on January 16th, but as Knots are rare inland in winter and Curlew-Sandpipers very rare at that season the failure to give any supporting evidence, especially in the latter case, is a serious fault. A record of a Little Stint at Frensham Pond on October 10th is additional to those published in *British Birds* (*antea*, Vol. xl, pp. 354-59).

The partial overlap between the Sussex section and the report in the *Hastings and East Sussex Naturalist* previously noticed (*antea*, Vol. xl, p. 383) is tiresome and confusing. Some of the records for the east of the county are the same as have already appeared in the journal referred to, though others are new, while many important records in the East Sussex report do not figure in the present one at all, although the former was issued long before the latter. The present report is therefore not a complete treatment of Sussex ornithology for 1946; we commend this point to the attention of the new sub-editor.

Several Dartford Warblers are reported from Downland localities during the summer, though none were located in S.E. Sussex. Eight pairs of Peregrines are reported in the county, seven on the coast and one inland. At least two Fulmars are recorded on the coast in June, and a Kentish Plover at the Midrips on July 18th (a second record has already appeared in the East Sussex report). A Richard's Pipit was satisfactorily identified in the Ouse Valley on December 12th and a Grey Phalarope at East Head, West Wittering, on December 1st; a record of the latter species at the Crumbles on October 27th, 1945, is added. Of other records not previously published, those of Osprey, Marsh-Harrier, Eider-Duck and Leach's Petrel might be mentioned.

Under Kent we note that three pairs of Marsh-Warblers were located in July in what is believed to be a new locality in the east of the county and that a pair of Marsh-Harriers attempted to breed, "but the nesting area was raided . . . and both birds disappeared." Gadwall bred on the Cooling marshes and a pair were present in East Kent in the breeding-season. Garganey bred in at least two localities; one observer located approximately nine pairs in North Kent, but in East Kent a decrease due to drainage is noted. Breeding of Quail is also reported. There are several records of Little Ringed Plovers which have not appeared in *British Birds*, namely one at gravel-pit in S.E. Kent, April 30th, two E. Kent, April 27th and one April 28th, one adult N. Kent, July 14th and an immature bird, September 8th, and one at Sheppey, August 4th; a juvenile in E. Kent on August 16th, 1945, is also recorded. A Great Skua is reported at Sheppey on July 5th, and a Little Bittern frequented an East Kent marsh from June 23rd to July 6th. There are a good many records of other more or less scarce birds, including a herd of 16 Bewick's Swans in March, a drake Eider on July 19th, Spoonbills, Avocets, etc. Some rarities such as Richard's Pipit, Woodchat, Red-breasted Snipe and others have been recorded in *British Birds* already.

There are tables dealing with migration dates and song for Surrey, Kent and Sussex. The Hampshire report, as noted above, is for the year 1945. At least four Black-winged Stilts were present on the Beaulieu in May of that year, a notable addition to the record of the 1945 immigration unfortunately not reported at the time. A Marsh-Harrier was satisfactorily identified in the New Forest area on August 28th. Most of the other records are of mainly local interest, but reference must be made to the remarkable one of four Common Terns on December 15th. Common Terns may occur quite exceptionally in winter and the record if authenticated would be of considerable

interest; yet it appears without a word of evidence or even any comment. Equally in need of authentication is a report of an adult Quail and two half-grown young on November 8th. As fresh eggs of Quail have been found as late as September this is not impossible, but without supporting details it is almost worthless. Is it too much to hope that if these records are really sound proper evidence will be published in a future issue? A minor point is that the recorders (indicated by initials) cannot be identified from the report as here issued, though presumably they can be in the original publication.

LETTERS.

WINTER FEEDING HOURS OF BIRDS.

To the Editors of BRITISH BIRDS.

SIRS,—There recently appeared in *British Birds* (*antea*, pp. 71-76) a paper by the Rev. John Lees on "Winter Feeding Hours of Robins, Blackbirds and Blue Tits". The figures on which Mr. Lees' conclusions are based are the number of birds of each species which entered baited traps in each hour of the day; and it is assumed that the number of entries into a baited trap in any hour will bear a direct relation to the intensity of feeding activity in the course of that period.

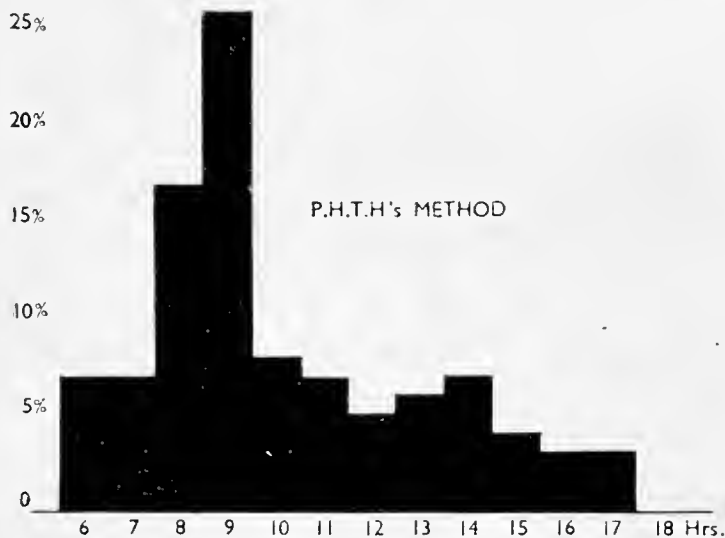
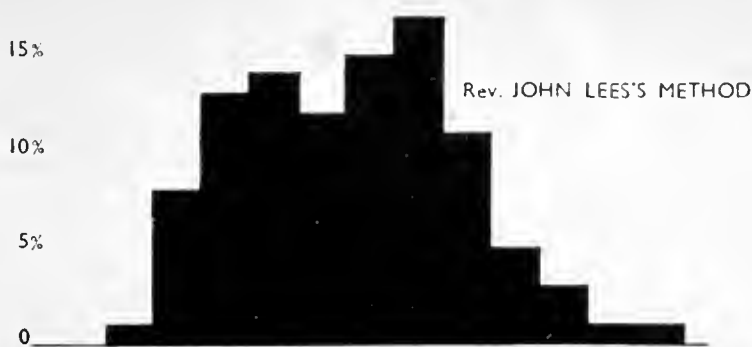
During the last year I have been collecting records of the feeding places of several species of birds. This investigation was not made with the intent of establishing the hour to hour routine of these species: but a record was made of the time of each observation of a feeding bird, and these provide an alternative basis for calculation of changes in feeding activity from hour to hour. This method can only be used when opportunities for observation are approximately equal throughout the day, and it lacks the complete objectivity of the trap method.

In the table the Rev. John Lees's records for the Blackbird (*Turdus m. merula*) in October, 1945 to March, 1946 and October, 1946 to March, 1947 are compared with my figures from the South Midlands for the period October, 1947 to March, 1948: and the histogram compares our results when expressed as percentages. The conclusions on routine, as calculated on the two bases, are so different that more investigation is needed to show which method provides the truer picture. The difference is such that it is unlikely to be due to diversity of method alone.

	Oct.-Nov.		Dec.-Jan.		Feb.-March		Total		
	J.L.	P.H.T.H.	J.L.	P.H.T.H.	J.L.	P.H.T.H.	J.L.	P.H.T.H.	
6-7	—	14	—	—	—	1	0	—	15 7%
7-8	—	5	—	10	1	2	1	1%	17 7%
8-9	1	8	3	14	5	17	9	8%	39 17%
9-10	3	7	6	14	5	40	14	13%	61 26%
10-11	—	7	6	4	9	7	15	14%	18 8%
11-12	—	3	5	6	8	6	13	12%	15 7%
12-13	3	4	6	1	7	7	16	15%	12 5%
13-14	2	5	5	4	11	5	18	17%	14 6%
14-15	1	4	9	8	2	3	12	11%	15 7%
15-16	1	—	3	6	1	4	5	5%	10 4%
16-17	—	3	—	1	3	4	3	3%	8 3%
17-18	—	—	—	—	1	6	1	1%	6 3%
18-19	—	—	—	—	1	—	1	1%	—
19-20	—	—	—	—	—	—	—	—	—

My figures for the Robin (*Erithacus rubecula melophilus*) are so few that they are not worth quotation, but they also suggest much more intensive early morning feeding activity than do Mr. Lees's. I have, unfortunately, no hour to hour records of the feeding activity of Blue Tits (*Parus caeruleus obscurus*) for comparison of the two methods.

P. H. T. HARTLEY.



Histogram illustrating the Winter Feeding Hours of the Blackbird as recorded by the Rev. John Lees's method and P. H. T. Hartley's method.

To the Editors of BRITISH BIRDS.

SIRS,—In the Rev. John Lees's paper on Winter Feeding Hours (*antea*, pp. 71-76) some points about the time seem to call for comment. In the first place Greenwich Mean Time is used for Tables I and II, and diagrams based on Table II. The author states he is approximately 4° west of Greenwich. This will make his diagrams sixteen minutes out for Mean Time in the locality of observation. Mean Time can differ upwards of a quarter of an hour from time by the sun over the period studied. Portions of the material on which the table and diagrams are based (with the exception of the Robin Oct.-Nov., which is approximately correct) can thus be as much as half an hour out by the time by the sun. This, of course, is too great an error for hour by hour timing.

A more serious objection to Table I and II and all the diagrams is that in Latitude 58°, over the period used, day length varies over six hours. This means that the two hours 6-8 in the morning and 4-6 in the evening are in daylight part of the time, in twilight part of the time, and portions of them even penetrate into the night. Material collected over such a range of day lengths cannot usefully be added together.

A final point which is a matter of opinion. The author gives his hourly totals from one hour to the next, *e.g.*, the amount of feeding is shown between

the hours of 7 and 8. This amount of feeding is therefore not representative of either the hour 7 or 8, but an hour round 7.30. In such hour to hour studies the ultimate aim must be to find out what birds do at different hours of the day, not only in feeding but in the many other activities whose diurnal pattern can be studied and compared. It would be unfortunate if results of such work were to be built upon a conception of what happens at the half hour. At noon, in particular, the half hour basis is difficult. It gives no concise statement of what happens at this vital hour. The on the hour basis, however, gives a direct figure based on material collected within half an hour of noon itself.

It should be added that previous recently published diagrams on diurnal feeding, drinking, fighting, courtship, coition (Rollin, *Naturalist*, 1943, p. 96), and on song (Bourke, *Emu*, Vol. xlvii, 1947, p. 5, Hartley, *antea*, Vol. xxxix, p. 46, Rollin, *antea*, Vol. xxxvi, pp. 148 and 149, Vol. xxxvii, pp. 85 and 86, Vol. xxxviii, 263 and 266, *Bird Research*, Vol. i, p. 60) have, with one exception, been based on the hour and not on the half hour. The exception is a single song diagram in the *Emu* (*loc. cit.*). NOBLE ROLLIN.

SIRS,—In thanking Mr. Noble Rollin for his comments on my paper on "Winter Feeding Times of Robins, &c.", may I crave a few lines in reply. His objections to the use of a variable noon, and a variable sunrise and sunset in the presentation of results, were well considered before the paper left my hands. A summary of the data, which takes all these variations into account, is given in Table III and the first part of Table IV. It was a matter of convenience to myself to use the periods 9-10, 10-11, &c., instead of the more usual 9.30-10.30, &c. The results were not meant to give any more than general indications, though an hourly system was used. In the matter of feeding, one can hardly time birds to an accuracy of minutes. The vagaries of our climate tend to make feeding times very irregular, especially in winter and in the North of Scotland. I am sorry I failed to isolate the hour about Solar Noon, which would have been advantageous in Table III.

Otherwise, the only question remains, is it worth while to summarize the results by Mean Time at all? I believe the presentation is justified. In these islands, the regularity of our human operations may well have some influence on the feeding times of birds. The feeding habits of *Laridæ* and *Corvidæ* may depend on the work of the ploughman in the fields. Herring-Gulls watch the arrival of the fishing fleets. Sparrows and Robins time their feeding by the arrival of crumbs at the bird tables, &c. "Mean Time" results may at least give some indication of how far the feeding times of the garden birds may be influenced by their partial dependence on human beings. "Solar Time" data could never show this. No conclusion of this kind was submitted in the paper, as the results in Tables I and II were rather against any undue influence of human habits on bird feeding.

Two indications however are of interest:

A. The Robin (Tables I & II) tends to feed the whole season through at 9-10 a.m. and 3-4 p.m. independent of the time of sunrise and sunset.

B. The Blackbird tends to cease feeding 3-4 p.m. independent of the time of sunset.

These are suggestive of habit regulation by human time, not by Solar Time. They are suggestive, not conclusive; but in order that such suggestions might be made by those who might study the paper, Tables I and II, with their corresponding analysis, were included.

JOHN LEES.

NOTICE TO CONTRIBUTORS.

British Birds accepts papers and notes dealing with original observations on the birds of the British Isles and Western Europe or, where appropriate, on birds of this area as observed in other parts of their range. Review articles on subjects of current ornithological interest will also be considered.

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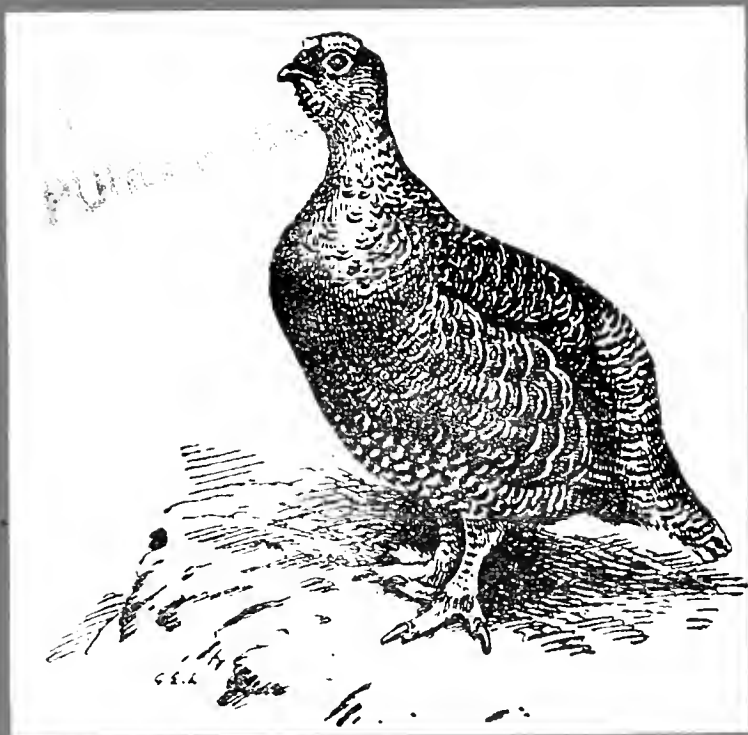
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NOTES ON THE BEHAVIOUR OF BLUE AND LONG-TAILED TITS IN WINTER FLOCKS

BY

JOHN TOOBY.

THESE observations were made during the winters 1942-1945 at Bransford and Powick in west Worcestershire, where winter flocks of tits are frequently to be seen in tall hedgerows as well as in the small coppices and oak-woods. The flocks are chiefly of Blue Tits (*Parus cœruleus obscurus*) and Long-tailed Tits (*Aegithalos caudatus rosaceus*); they often consist of around twelve of one or both species and usually a pair or so of other birds.

About mid-winter, the date doubtless depending on the weather, the behaviour of the birds undergoes a change. Previously intent only on searching for food, the birds now pay more attention to each other, and vigorous close chases of one bird by another, accompanied by special notes, frequently take place. Other forms of display also occur, notably a special flight vertically upwards and then down with spread tail, recalling a singing Whitethroat.

A cold spell inhibits all this activity and the birds' whole attention seems again to be centred on food.

THE BLUE TIT.

In the case of the Blue Tit I have found chasing general in mild weather in mid-winter; it is quickly followed by the break-up of the flocks into scattered pairs. In a small oak-wood on December 27th, 1942, I watched a flock which included twelve Long-tailed Tits and about as many Blue Tits. Short chases, each involving two Blue Tits, were constantly taking place, often for five yards or so, sometimes up to twenty yards. Associated with the chases were squeaky notes "tsit-tit-tec" and variations. Scolding notes and an attractive trill were also heard. Chases began when one bird flew at another as if in attack, fluttering its wings when almost in contact. The menaced bird then flew off with the other in close pursuit. On their alighting, close together, the pursuing bird sometimes started wing-flicking. On three occasions in 45 minutes the pursuing bird immediately started another chase after a third bird; after one such incident one of the pursued birds then chased the other. Flight was usually fairly level, but on one occasion two birds alighted in the undergrowth after a rather long chase.

Similar chases, though more usually for twenty yards or so were seen in the two succeeding winters. Another incident in the same wood on January 16th, 1944, is interesting in that some birds were already dispersed in pairs. On this occasion two out of a party of six Blue Tits indulged in a whole succession of chases, which took them out of the wood and along a hedge leading away from it. The pursuing bird initiated each chase by

flying at the other, but only following closely for the first few yards. Finally the pursuing bird returned to the rest of the party in the wood.

THE LONG-TAILED TIT.

On the occasion previously referred to on December 27th, 1942, as on other occasions in succeeding Decembers, chases amongst the Long-tailed Tits were only seen at intervals. When they occurred, several often took place in quick succession. During these chases, a creaky "tsit-tit" with variations, e.g., "tseer-tseer-tsit", is uttered by one or other of the birds. The chases were usually for about twenty yards; on alighting, the leading bird usually flew off again almost at once; the pursuer sometimes followed but more often returned to the flock.

Chases are sometimes started by one bird flying at another, after the manner of the Blue Tit; at other times when several birds are on the wing together, one bird will suddenly put on speed and fly at another.

Dispersal into separate pairs takes place later in the season than in the Blue Tit and is spread over a longer period. Pairs were seen on February 2nd, 1944, and a party of five on the following March 23rd. The quiet "stay-at-home" behaviour of the paired birds is in marked contrast to the excitement in the flocks in February and early March. At this time those Long-tailed Tits that are still in flocks take part in excited chases which may take the participants for considerable distances in various directions. Display-flight and song may be indulged in by the birds in the intervals between chases. On March 7th, 1945, I was able to watch what was possibly the final dispersal of a party of six birds into three separate pairs. When first seen three birds were taking part in wildly excited chases along the side of a low hedge. They soon joined the rest of the party in a thicket some 50 yards from where I stood. After some movement there one pair flew to the tall hedges of a green lane. The rest flew in the opposite direction to some clumps of brambles at the end of a steep gully. They immediately flew on to the low hedge, but when they reached a corner in the hedge one pair suddenly flew back to the gully, stopping for a short time at the thicket "en route". The other pair then worked their way quietly along the hedge towards the wood; they were flicking their wings and calling "tsirrp" repeatedly. In all cases the birds seemed very much less excited in separate pairs than in the flock. On March 13th, I found three separate pairs, one in the gully, and two in different parts of the wood. This would seem to lend support to the inference that the party finally dispersed into separate pairs on March 7th.

DISPLAY-FLIGHT.

I have witnessed display-flights of the Long-tailed Tit on several occasions, most of them involving birds in the flock. On

January 11th, 1944, I watched a flock in a small oak-wood. Frequently one or other of the birds soared vertically upwards for 15 or 20 feet and then dived vertically down again. The tail was spread throughout so as to show the white edges. This display was sometimes performed by several birds in quick succession, so that three or four were often displaying simultaneously. A few chases took place on this occasion, none of them very vigorous. In my experience the birds do not usually soar so high, often only 4 or 6 feet, and sometimes the soaring upward part is omitted altogether. On one occasion a bird checked its descent several times, giving the effect of an aerial dance. I have a few records of this special flight from paired birds. A case of this with other points of interest occurred on February 14th, 1943; in various parts of a small orchard there were two Blue Tits which chased each other as described above, a pair of Blue Tits, a pair of Long-tailed Tits and two pairs of Great Tits. After the chase was finished, one of the pair of Blue Tits performed a succession of display-flights similar to those of the Long-tailed Tit, though without any noticeable spreading of the tail. One of the pair of Long-tailed Tits then performed its display-flight several times and this was followed by an almost exact repetition on the part of one of the Great Tits. This bird fanned its tail to show off the white edges. Presumably the display is sufficiently similar in the three species for performance of it by one of them to stimulate the others to follow suit.

COAL- AND MARSH-TITS.

Coal-Tits (*Parus ater britannicus*) and Marsh-Tits (*Parus palustris dresseri*) are usually seen in pairs in my district. I have single observations on each of these species which may be of interest here. Chases, closely similar to those described above for the Blue and Long-tailed Tits occurred in a party of Marsh-Tits on July 24th, 1943, and in a party of Coal-Tits on September 19th, 1943; they were accompanied in both cases by calls noticeably similar to those used in the chases by the Blue and Long-tailed Tits.

SUMMARY.

In three successive winters a special form of behaviour in Blue Tits and in Long-tailed Tits has been observed to precede the dispersal of the winter flocks into separate pairs. Until more data are available, however, caution is needed in drawing any general conclusions.

THE INCUBATION PERIOD OF THE OYSTER-CATCHER

BY

J. KEIGHLEY AND E. J. M. BUXTON.

IN 1939 one of us studied a number of pairs of Oyster-catchers (*Hæmatopus ostralegus occidentalis*) breeding on Skokholm, Pembrokeshire, and as was stated in the paper then published (Buxton, 1939) it had been hoped to make a fuller study of the species when circumstances should allow. In 1946 and 1947 this work was resumed, and among other things special attention was given to the length of the period of incubation, about which some uncertainty seemed still to exist. In the paper referred to the incubation periods for five nests were given as 25, 25, 26, 26, and $26\frac{1}{2}$ days. Though these figures are roughly correct they were not determined with sufficient precision, and were too few, to be of much value. Some figures were obtained for about fifty nests on Skokholm and Skomer in 1946, but it was decided that these also were not precise enough.

In 1947, therefore, all the 51 nests on Skokholm were visited every morning, and during the periods of laying and hatching visits were also made in the evening. By this means the error was reduced to 12 hours or less, and the figures here given are perhaps as accurate as can be hoped for in studying so many nests in one season. The birds (which are unusually tame on Skokholm) seemed not to be unduly disturbed by these visits and no nests were deserted, though in a few disturbance may have prolonged incubation.

In 1947 the first chicks hatched on May 30th, the last on July 15th. (In 1939 the first had hatched about June 1st, and the last on July 5th and in 1946 the first hatched on May 27th and the last on July 6th, while on Skomer, the first clutch, already complete, was found on April 28th, so that the first chick hatched probably not later than May 24th, and the last chick hatched about July 19th). Of the three seasons the finest and mildest in April and early May was 1946, and the least favourable was 1947. Late clutches are probably often replacements for clutches taken by gulls.

Owing to these depredations it is impossible to give an accurate account of the size of clutches unless the nests are visited daily, since clutches of two eggs may represent clutches of three from which one egg has been taken. It is true that if one egg is taken the birds often desert, and then the others are also taken, but this does not always happen. The figures given for Skokholm in 1939—13 $c/3$ and 12 $c/2$ —are therefore probably misleading, and it is unlikely that in all nests recorded as $c/2$ only two eggs were laid. Other published records are probably open to the same objection, as are also our own records from Skokholm and Skomer in 1946. (These are on Skokholm 1 $c/4$, 20 $c/3$, 16 $c/2$; and on

Skomer 13 $c/3$ and 9 $c/2$). In 1947, 141 eggs were laid in the 51 nests, as follows:—2 $c/4$, 35 $c/3$, and 14 $c/2$. This is probably typical of the normal distribution of clutch-sizes in this part of the country. Campbell (1947) compares the clutch-sizes of 65 nests in the Ardnamurchan district with those of 70 nests recorded by Haverschmidt in Holland. It may be worth tabulating these together with Dirksen's records from Norderoog and Mellum, Germany (Dirksen, 1932).

	$c/4$	$c/3$	$c/2$	$c/1$	Average
Pembrokeshire 1939 and 1946	1	46	37		2.52 & 2.59
Pembrokeshire 1947	2	35	14	—	2.76
Argyllshire 1921-29	3	30	28	4	2.59
Holland	7	42	19	2	2.83
Norderoog 1931	20	45	19	—	3.01
Mellum 1930	3	12	1	—	3.13

Campbell points out that some of the records of Haverschmidt and himself may not refer to full clutches, and it seems likely that the proportion of $c/2$ and $c/1$ is too high. In general it may be said that in Germany as also probably in Holland (*cf.* Jourdain: MS note-books) and in Norway (Collett 1921) clutches of 4 seem to be rather more frequent than clutches of 2, but, as in Britain, the normal clutch contains 3 eggs.

In all but two of the 1947 nests incubation began with the last egg, but in nest No. 8 ($c/4$) it began with the 3rd egg, and in No. 49 ($c/3$) it began with the second. Moreau (1946) suggested that "the incubation period should as a rule be counted from the laying of the last egg", except where incubation is known to have started earlier. We followed this method, but calculated the period *up to the hatching of each egg*, not of the whole clutch. For that reason the number of records in Table I (38) is much smaller than the number of eggs under observation at hatching (83), but the results are, obviously, much more accurate than if a figure had been given from the last egg laid to the last chick hatched.

In those nests where it was possible to mark the eggs as laid there was little to suggest that eggs laid first will normally hatch first. In some nests this did happen, in others all the eggs hatched almost simultaneously, and in others again the 2nd or 3rd egg hatched before the first (see Table I). For example: nest No. 8 contained 4 eggs, laid at the usual intervals of 36-48 hours; incubation began with the laying of the 3rd egg, and the eggs hatched in the order 2, 3, 1, 4. It is of interest to note that here the first three eggs hatched at intervals of about 3 hours while the 4th egg did not hatch for another 24 hours. This seems to suggest that the incubation which took place before the completion of the clutch was nevertheless quite normal for the first day. This is confirmed by the other nest in which incubation began before the completion of the clutch. Here only 3 eggs were laid, but the 3rd egg hatched at least 16 hours after the first two.

TABLE I.
INCUBATION PERIOD.

Nest No.	3 Days. ±	5 Days. ±	8 Days. ±	9 Days. ±
Eggs 1	(2) 25.25 .5	(1) 27.75 .5	(3) 26.25 .5	(1) 26.0 .5
per 2	(1) 25.25 .5	(2) 28 .5	(1) 25.75 .75	(1) 26.0 .5
Clutch 3	(3) 25.75 .25	(3) 28.25 .5	(2) 26.25 .25	(1) 26.0 .5
4			(4) 25.75 .25	
Average	25.4	28	26	26
Date clutch completed	May 17	May 17	May 19	May 19

Nest No.	10 Days. ±	11 Days. ±	15 Days. ±	22 Days. ±
Eggs 1	(1) 25.25 .5	(3) 26.5 .5	(1) 25.75 .5	(1) 26.0 .5
per 2	lost	(1) 26.0 .5	(1) 25.75 .5	(1) 26.0 .5
Clutch 3	(2) 25.75 .5	(1) 26.0 .5	(3) 25.75 .5	(1) 26.0 .5
Average	25.5	26.2	25.75	26
Date clutch completed	May 17	May 16	May 19	May 23

Nest No.	23 Days ±	30 Days. ±	34 Days. ±	37 Days. ±
Eggs 1	(1) 26.75 .75	(1) 28.0 .5	dead in shell	lost
per 2	(2) 27.5 .5	(2) 28.0 .5	26.75 .25	28.0 .25
Clutch 3			infertile	
Average	27.1	28	26.75	28
Date clutch completed	May 20	May 23	May 28	May 31

Nest No.	38 Days. ±	40 Days. ±	49 Days. ±
Eggs 1	(1) 25.75 .25	(1) 25.0 .5	(1) 27.5 .5
per 2	(2) 26.0 .25	(1) 25.0 .5	(1) 27.5 .5
Clutch 3	(3) 26.5 .5		(3) 27.75 .5
Average	26.1	25	27.6
Date clutch completed	May 30	June 2	June 15

Incubation periods of each egg laid, showing in parenthesis the order in which these were hatched.

NOTE.—Incubation began with the last egg except in clutches numbers 8 and 49, in which it began with the penultimate.

The incubation period varied between 25 days $\frac{1}{2}$ hr., $\pm 11\frac{1}{2}$ hrs., and 28 days $6\frac{3}{4}$ hrs. $\pm 9\frac{1}{4}$ hrs., and the average incubation period was 26.5 days, or 26-27 days. A similar period is also given by Heinroth (1928), Turner (1930) for Norfolk, and Dircksen for Germany. Table I shows the incubation-periods for 38 eggs. From this it will be seen that the hatching of 11 eggs occurred after a considerably longer period than the normal, and it seems likely that this was due to disturbance. These delayed hatchings took place in 5 nests: at No. 49 a hide was erected for photography, with the consequent excess of disturbance; No. 37 was between the house and the much visited north pond, and No. 5 was beside this pond; No. 30 was in another much frequented place; and No. 23 belonged to a very nervous pair which left their nest if anyone passed along the lighthouse railway, and so were also constantly disturbed. It is probably better to ignore these 11 eggs in estimating *normal* length of incubation, which will therefore be slightly under 26 days. This confirms the records from Skokholm in 1939 (quoted above) and may be taken to correct other records which vary from 21 to 29 days or more. Jourdain (1939) considered that the record of an egg hatched in an incubator in 21 days (Paynter 1907) referred to a partly incubated egg; and commenting on Cowin and Ladds (1939) record of 29 days he remarks that "28 days is a fairly common period, but when a bird has been frequently disturbed it may be exceeded considerably". Our experience on Skokholm suggests that any period over 27 days is due to disturbance and that such disturbance will seldom prolong incubation much beyond the 28th day. Presumably if there is very frequent disturbance the birds would desert, but Dircksen records an incubation period of 34 days 15hrs. at one nest on Norderoog, where the birds were continually disturbed (*ununterbrochen gestört*) owing to their proximity to the observers' hut. At Skokholm in 1946 one pair were still incubating their three eggs after 41 days. Presumably these were infertile. Occasionally, as Ryves (1946) has pointed out, incubation may not start immediately the clutch is completed, and if this is overlooked the period will be overestimated. Jourdain further states that 24 days is the minimum period, but the very few records of so short a period may be due to a false assumption that incubation always begins with the last egg.

TABLE II.

		HATCHING PERIOD.			
Days	... ..	$1\frac{1}{2}-1\frac{3}{4}$	2-2 $\frac{1}{4}$	3-3 $\frac{1}{4}$	4-4 $\frac{1}{2}$
No. of eggs	... ..	2	36	41	4

Table II shows the distribution of the hatching periods for 83 eggs, that is to say of the length of time between the first chipping of the shell and the emergence of the chick. This period varied between 1 day 14 hrs., ± 10 hrs., and 4 days 12 hrs., ± 12 hrs.,

and the average hatching period was 2.9 days. (Jourdain gives this period as from 1 to 3 days). There is nothing to show that disturbance plays any part in delaying the final emergence of the chick, and the length of time taken presumably depends on the strength of the chick and the thickness of the shell. A few chicks die during this stage, and we have records of the deaths of one at Skokholm in 1939, two at Skokholm and one at Skomer in 1946, and two at Skokholm in 1947.

In 1939 3, or perhaps 4, out of 63 eggs failed to hatch, while in 1946 (at Skomer) the number was 7 out of 60, and in 1947 (at Skokholm) 7 out of 141. We have no complete records of the number of eggs taken by gulls, and occasionally by crows, for previous years, but in 1947 43 out of 141, or over 30% were taken. (At Skokholm in 1946 at least 34 out of 101 were taken.) An unknown number of chicks is also taken in the same way before they can fly, and in 1947 the rings of 6 chicks were found in gulls' pellets within a month of the chicks having been ringed. Oyster-catchers vary considerably in their aggressiveness, and though of six nests near one colony of Lesser Black-backed Gulls (*Larus fuscus grællisii*) five lost all their eggs; in another nest, which was in the middle of such a colony, only one egg was taken.

The Handbook states that the chicks remain in the nest from 1 to 2 days, presumably basing this on Dewar (1920), who adds that if the chicks do leave earlier they "do not go more than a few feet away". In our experience in three seasons it is quite exceptional for the chicks to remain in or near the nest for more than 12 hours, and normally they run as soon as they are dry, so that one chick may have left the nest before one of the other eggs has hatched. If the chicks hatch in the morning they will normally have run by the evening, but if they hatch late in the day they may stay in the nest overnight. In fine weather chicks often leave the nest in 5 or 6 hours after hatching, and though they obviously cannot run far on the first day it is certainly not true to say that they remain within a few feet for the first two days.

Our thanks are due to the West Wales Field Society for the use of their records, and to Messrs. D. Lack, R. E. Moreau and J. A. Gibb for most useful criticism and suggestions.

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REPORT OF THE BLACK REDSTART INQUIRY FOR 1947*

BY

R. S. R. FITTER.

THE Inquiry has yielded evidence for at least fifteen pairs of Black Redstarts (*Phœnicurus ochrurus gibraltariensis*) breeding in south-east England in 1947, again in the counties of Sussex, Kent and Middlesex. In addition four other pairs were present, without breeding being proved, and some nine other singing males were located. Birds which were probably only on passage are not mentioned in this year's report, but silent birds were observed on single days in the breeding-season in several other localities, including Deal (Kent), Woodbridge (Suffolk) and Worsley (Lancashire). Including those mentioned by name below, 89 observers contributed information to the inquiry during the year.

A summary of the breeding records for 1947 follows:—

V.C. 14 East Sussex.

Three pairs bred on Pett Level (R. Cooke, A. Denby Wilkinson); one pair present on the undercliff between Ecclesbourne and Fairlight, but breeding not proved (N. Orr). Two singing males in Hastings (B. T. Brocker, R. N. Ticehurst), one in St. Leonards (H. G. Attlee, R. G. Ticehurst, N. F. Ticehurst, A. A. Wright, Mrs. A. A. Wright) and one in Eastbourne (D. D. Harber).

V.C. 15 East Kent.

Five pairs nested in Dover (G. E. Took), and one pair nested in Ramsgate (H. G. Jeffery, E. O. Höhn, L. Lloyd-Evans). A pair present in Folkestone, but breeding not proved (Rev. L. G. Sheldon), and a singing male in Margate (H. G. Jeffery).

V.C. 21 Middlesex.

Six pairs nested in the City of London (four in the Cripplegate area, one in the Fetter Lane area and one in the Walbrook area), and two more pairs may have done so; at least three other singing males were present in the City, and probably another at Woolwich. For summarizing the extensive London data I am much indebted to Mr. P. W. E. Currie, who had the co-operation of 42 other observers.

V.C. 34 West Gloucestershire.

One singing male in Bristol in July (R. E. Alley, A. E. Billet, H. H. Davis, A. C. Leach, W. R. Taylor).

V.C. 38 Warwickshire.

One singing male in Birmingham from May 20th to June 25th (C. A. Norris, R. J. Waine).

The organizer wishes to thank all the observers who co-operated in the Inquiry in 1947, and hopes that they will continue to send him information for 1948, to Greyhounds, Burford, Oxford.

*Publication of the British Trust for Ornithology.

THE GANNET IN SHETLAND IN WINTER

BY

G. T. KAY.

(Plates 45-46).

THE unusual activities of the Gannet (*Sula bassana*) in the waters around the Shetland Islands during the winter 1945-46 present a problem of some interest. According to *The Handbook* the Gannet is seldom seen in Scottish waters during the winter months and this is normally the case around Shetland. Dense shoals of young Coal-fish (*Gadus virens*) were present in Shetland coastal and sheltered waters during the period and while this undoubtedly had something to do with the activity, it is remarkable that similar periods of Coal-fish abundance have never before attracted Gannets in numbers. I shall describe some of those activities and later attempt to answer the problem they present. From the late summer of 1945 until the spring of 1946, Gannets never quite left the Shetland coast. They were to be seen diving in Lerwick Harbour often day after day and certainly at some time during every week of the above period. Up till the month of January these harbour birds were few, from half-a-dozen to a score, but on January 15th the number jumped to about ninety. On the 21st there were roughly three hundred, and on the 27th at least five hundred birds were in the harbour, groups of them giving diving demonstrations along the sea-front of the town, within a few yards of quays and traffic. This large number remained fairly constant until February 10th, when there was a rapid decrease, and on the 14th there were less than a dozen left. This activity was not confined to Lerwick Harbour. Similar occurrences took place, on a smaller scale, at many inlets around Shetland and also at Seapa Flow in Orkney and at Scrabster in Caithness.

From January 27th until February 10th roughly five hundred Gannets visited Lerwick Harbour daily. They came in from the open sea at daybreak and returned again to the open sea at dusk. Dense masses of young Coal-fish had packed into the harbour and on these the Gannets fed. Their feeding was spectacular. The procedure seemed casual, but results were sufficient. The large majority of the birds spread themselves over the surface of the harbour and simply rested on the water, while an active string of birds maintained a continuous patrol around the shoreline at a height of thirty to fifty feet, backwards and forwards and round about. Periodically group-dives developed. One bird dived and was followed by a dozen of those nearest to it. Immediately from all over the harbour, birds got on the wing and flew towards the spot. Within a couple of minutes, anything from a hundred to three hundred birds or more were diving, getting on the wing and diving again. This activity lasted for

perhaps five to ten minutes and then the birds dispersed over the harbour again, except those which kept up the patrolling; the latter probably the less fortunate and hungry ones. Many of those group-dives developed within a few yards (often a few feet) of the quaysides. Occasionally a couple of hundred or so dived into a small-boat basin, from which they were unable to get out except by swimming on the surface through the narrow entrance. When it was realized that the Gannet would dive readily on dead fish, it proved to be a simple matter to stage a diving exhibition where and when desired. With a view to getting still and cine photographs of the occasion, a box of Coal-fish was put in cold storage, in the hope that the sun would shine at noon some day before the birds departed. (Beyond the 60th parallel the days can be drab in January). A good opportunity offered and with the box of fish at one pier and the photographers at another, the stage was set. It was commonplace for half-a-dozen birds to dive on one little fish and the reader may imagine the scene when fish were thrown out in numbers. The Gannets literally poured down in tens and twenties until hundreds were involved. More than one of these astonishing demonstrations were staged and were equally successful. This may read like a figment of the imagination, yet three hundred feet of cine film make it very real.

Many details of interest were noted at close quarters during those activities, and the following, so far as the writer is aware, have not hitherto been described. After each group-dive, the birds remained on the surface, in a loose raft-like formation, for a few minutes before dispersing and it was noted that after one of those dives had taken place on live fish, in shallow water, many of the birds poked their heads under water like Shags and a number of them deliberately dived, guillemot fashion, with wings half open. Quite a number of birds were seen using their wings under water like Guillemots. When the impulse from the normal plunge was exhausted and no fish was caught, the dive was often prolonged by swimming in this fashion. One bird was noted, under water, beating along the face of a quay, evidently looking for fish amongst the sea-weed attached to the quay, in the manner of a Guillemot or Shag, except that the Shag normally uses its feet only. While getting on the wing, both feet are used simultaneously, like Shag and Cormorant, but, on two occasions a bird (perhaps the same one) was seen to use both feet together while swimming on the surface. A good speed was maintained, but the action was jerky, as can be imagined. A feature of the group-dives was that many of the birds uttered the call note "kirrk kirrk" immediately before diving. Just before the cod-end of a seine net, literally a bag of fish, was lifted on board a fishing boat, a Gannet dived into the mass and did not re-appear until the fish were spilled on the boat's deck. Although almost dead from suffocation, the bird survived. While diving on fish alongside fishing vessels lying at a quayside, two birds struck the vessels' rigging, glanced off,

crashed on deck and were killed. Only when an extra large fish was caught were the last stages of swallowing done on the surface. Often two or three birds would float up to the surface holding on grimly to the same fish, demonstrating that a quick swallow under water is advisable.

It is the writer's opinion that, when a group-dive takes place, only a few of the first birds to dive actually see the fish; the others dive on "spec" and the chase only commences when the fish are actually sighted under water. The fact that no birds were seen to be killed or maimed under water by others raining down on them suggests a considerable degree of control in spite of the tremendous speed of the dive. Such ability to control direction, under water, is probably a necessity in the following and catching of fish. Except for two birds in their dark first winter plumage, all birds seen were adult.

Why, it may be asked, were so many Gannets so many hundreds of miles north of their normal winter feeding areas? It may be kept in mind that the two Shetland nesting colonies were established, one in 1914 and the other in 1917: As already mentioned there have been many fall and winter periods of coal-fish abundance around Shetland, but never before have numbers of Gannets been attracted by them. Many of those periods have occurred since 1914 and they may be termed normal periods in that the size of the fish were from four to six inches in length. The 1945-46 period, however, was different, as the fish ranged up to a foot in length and the majority were of the larger sizes. Judging from the size of fish thrown up by Gannets when attacked by Great Skuas, I should say that the Gannet prefers a herring-sized fish to one the size of a sardine and on this supposition my answer rests. Small fish will not hold the adult Gannet in northern waters over the winter, whereas an abundance of larger fish will.

STUDIES OF SOME SPECIES RARELY
PHOTOGRAPHED.

XVI. THE WHISKERED TERN.

Photographed by

W. E. HIGHAM, H. A. PATRICK AND G. K. YEATES.

(Plates 41-44).

THE accompanying photographs of the Whiskered Tern (*Chlidonias hybrida*) were taken in the Camargue (Rhône Delta) in 1947. This species is one of the group of so-called "Marsh Terns" to which the more familiar Black Tern (*C. nigra*) also belongs. In breeding plumage it is in some respects intermediate in appearance between the Black Tern and sea terns of the *Sterna* type, since it has a black crown, white face and red bill combined with dark grey breast and belly. The grey of the upper-parts is also somewhat darker than in the *Sterna* species and the tail only slightly forked. The photographs bring out very well the fact that the so-called "whisker" does not appear as a stripe in life, though it is often so described in text books and indeed tends to have this appearance in skins; on the contrary the whole side of the head appears white, shading gradually to grey on the neck.

The species has a very wide distribution in the warmer parts of the old world. The typical race breeds locally in southern and eastern Europe and also in North-West Africa and south-western Asia. It has bred exceptionally in Holland and Switzerland, but in this country occurs only as a very rare vagrant. It breeds in colonies in marshes and lagoons, generally building its untidy nest amongst rushes or similar vegetation in shallow water, constructing it of rush stems or water weeds and laying, as a rule, three eggs, though clutches of two and more rarely four also occur. Incubation is shared by both sexes but performed chiefly by the female.

B.W.T.

NOTES.

JACKDAWS HAWKING INSECTS, WITH A NOTE ON FLIGHT BEHAVIOUR.

On September 26th, 1946, the day after Mr. A. V. Cornish saw Jackdaws (*Corvus monedula spermologus*) hawking flying ants over Minehead (*antea*, Vol. xl, p. 115), four Jackdaws, which I took to be two pairs, were catching insects in the sunshine at heights up to about 150 feet over arable land beside their colony trees near Matfield, Kent. On March 25th, 1946, too, several were circling and snatching at insects over the same field, and also previously on March 15th, 1935, when the field was pasture; the latter date being also noted as a sunny day.

This colony seems to have three or four types of flight which are each recognizable as the result of a different motive. One reminds me of the description of "dreads" by G. & A. Marples, in their *Sea Terns*, pp. 169-172. The birds suddenly leave the trees simultaneously in one direction, in apparent panic, sometimes as if flying before the stoop of a falcon, but, after flying perhaps a hundred yards, they return at once to the trees they have just left or others close to them. I have thought that this might be due to disturbances from the road or cottages near by, but no alarms I have seen have produced a comparable response. At one time I thought owls in hiding there might be the cause, but have now found that their reaction to them seems to be a noisy outburst, and a dash towards their disturber; whereas these "dreads" are away from the trees and, I think, always silent. However, once a "dread" did appear to coincide with a Little Owl (*Athene noctua vidalii*) taking an insect from the grass. The immediate return to the trees seems to me to suggest, however, that fear is not the motive, at any rate not fear of a lasting nature.

Another type of flight is obviously a "pursuit" usually by three, four, or five birds. This is likely to be a prolonged affair lasting perhaps between five and ten minutes. The birds fly low and at top speed, dashing in hot pursuit of each other as they dive, zoom, bank, "chack", and dodge round, over, and between obstacles. Sometimes a bird will drop out of the chase and others may join in.

Thirdly, parties take leisurely and apparently aimless flights. These are at a fair height, and seem to have no motive but the fun of flying. There may be a twisting plunge or two and some tight turns with some accompanying chatter. I do not think these last more than a minute or two.

R. E. PODMORE.

JACKDAWS HAWKING INSECTS.

WITH reference to Mr. A. V. Cornish's note on this subject (*antea*, Vol. xl, p. 115) it may be of interest to state that about noon on October 12th, 1945, in Addington Park, north-east Surrey, I watched several Jackdaws (*Corvus monedula*



WHISKERED TERN (*Chlidonias hybrida*).

CAMARGUE, MAY, 1947.

(Photographed by H. A. Patrick).



WHISKERED TERN (*Chlidonias hybrida*).

CAMARGUE, MAY, 1947.

(Photographed by W. E. Higham).



WHISKERED TERN (*Chlidonias hybrida*).

CAMARGUE, MAY, 1947.

(Photographed by G. K. Yeates).



WHISKERED TERN (*Chlidonias hybrida*).

CAMARGUE, MAY, 1947.

(Photographed by G. K. Yeates).



GANNETS IN LERWICK HARBOUR, WINTER, 1945-6.
(Photographed by J. D. Rattar).

A bird on the left-hand side of the plate at about centre level is diving from the surface as described in the text.



GANNETS IN LERWICK HARBOUR, WINTER, 1945-6.
(Photographed by John Peterson).

spermologus) circling curiously and apparently hawking flying insects or, just possibly, young spiders, as gossamer was present. Anyhow, I noted it down as a "distinctly clumsy performance". The day was very warm with bright sunshine and little or no wind following considerable mist, which cleared during the late morning.

HUBERT E. POUNDS.

ON March 10th, 1948, between 10.30 and 11.30 (G.M.T.), I saw a party of fifteen Jackdaws (*Corvus monedula spermologus*) hawking insects over Coombeinteignhead, South Devon. The method used by the birds was to fly towards the insects, then stall and dive on the insect with wide open beak. This was being done over pasture and orchards at heights ranging from ten to about fifty feet from the ground. It was impossible to see what species of insects were being pursued in this way. . G. H. GUSH.

ALTERNATIVE CALL OF CHAFFINCH.

WITH reference to Mr. P. P. L. Stevenson's note under this heading (*antea*, Vol. xl, p. 248), I write to record that I have heard the long, drawn-out alternative call, "tswée-e-e," of the Chaffinch (*Fringilla cœlebs gengleri*) on several occasions in the last two years in my garden near Crawley, Sussex. Here ten to twelve pairs of this species nest each year, so that I have ample opportunity to see much of the birds. In 1946, I heard this call twice in April, on seven days in May and once on June 4th. In 1947, on four occasions in April, five times in May and not at all in June. It is usually used several times in succession with, for a Chaffinch, quite a long pause between each utterance: and very often it follows the common "pwink, pwink" call. Like the similar note of the Greenfinch (*Chloris c. chloris*), which it resembles, it seems to be audible over quite a distance. Except for the one June record, I have not heard it after May 19th. I might add that in this garden there are a number of coniferous trees.

I. J. FERGUSON LEES.

YELLOWHAMMER IN NEW ZEALAND USING OLD NESTS OF OTHER BIRDS.

THERE is no mention in *The Handbook* of the Yellowhammer (*Emberiza c. citrinella*) using other birds' nests as a nesting-site. As I have records of two such occurrences in the Waivarapa district of New Zealand and as the nests used were those of another introduced species from Great Britain it might be of interest to publish the details. On September 16th, 1934, I found a Yellowhammer's nest, an old one, containing one egg, evidently of the previous season, in a nest of a Song-Thrush (*Turdus e. ericetorum*). The thrush's nest was 6 feet from the ground in a Totara (*Podocarpus totara*), a coniferous tree. The Yellowhammer had added some moss at the base inside the mud cup, then some grass stems and lined the cup of its structure with white hairs. The second record was on December 29th, 1940,

when I flushed a female Yellowhammer from its nest built in an old Song-Thrush's nest in a Manuka (*Leptospermum scoparium*) growing on a bank. This nest, which contained four eggs of the Yellowhammer, had been constructed similarly to the cup of the thrush's nest. By standing on the top of the bank I was able to look right into the nest. Is it not possible that the Yellowhammer may make a similar use of old nests in Britain?

ROBERT H. D. STIDOLPH.

"INJURY-FEIGNING" OF GREY WAGTAIL.

ON May 22nd, 1946, a nest of a Grey Wagtail (*Motacilla c. cinerea*) was found at Morden, Surrey. It was placed six feet up in a branch of ivy against a wall about 20 yards from the river Wandle along a small backwater. There were three small young (? 3-4 days old) and two addled eggs. The hen was startled off the nest and, calling "ehizzi", alighted on the ground four yards in front of me and then ran about in small circles with its tail scraping the ground and fully expanded to show the white outer feathers. The wings were held down, appearing also to touch the ground. This display was continued with frequent calls of "chizzi" for a minute or more. Then she flew off and would not return to the nest while I was near but flew about near by collecting food and giving plaintive "see-eep" calls. "Injury-feigning" is not recorded in *The Handbook*.

G. BEVEN.

DOUBLE BROOD OF WOOD-WARBLER.

ON June 6th, 1947, I found the nest of a pair of Wood-Warblers (*Phylloscopus sibilatrix*), containing six young, about four days old, near Handcross, Sussex. On June 11th, the young were being fed chiefly by the male. After a while the female came with food and fed the young. She then went off, giving the piping alarm-note "püü," followed by the male, which was singing most of the time. The female picked up a piece of grass and disappeared with it into a bramble patch. Shortly afterwards I flushed her from a half-built nest among the briars. For about an hour I continued to watch. She spent most of that time building the new nest, but occasionally went back to feed the young in the first nest 140 yards away. On June 13th the young flew from the first nest, and were tended by the male alone. On the 15th, the second nest was completed and the first egg was laid in it on the 16th; the clutch of five being completed on June 20th, only seven days after the young from the first brood had flown. The male continued to look after the young, while the female incubated the second clutch. Unfortunately, however, the nest was destroyed by a squirrel before the eggs hatched.

I. J. FERGUSON LEES.

[It appears to be extremely unusual for Wood-Warblers to produce a second brood. We only know of one definite case (*antea*, Vol. xv, p. 285).—EDS.]

DISPLAY OF BLACKBIRD.

ON my lawn at Little Eversden, Cambridgeshire, on the morning of January 17th, 1948, I witnessed a courtship display of a pair of Blackbirds (*Turdus m. merula*) which I cannot find mentioned in any text book. It was 8 a.m. (G.M.T.), a bitterly cold morning with slight snow falling.

The birds were engaged in what I can only describe as a formal dance, the hen setting the pace. She ran forward for four or five paces, paused a moment with tail erect and partly fanned, then took a quarter turn and darted off another few paces, paused with tail as before, then took another quarter-turn and so on. The cock bird followed every movement so exactly, at a distance of about 18" from the hen, that they might have been joined by a wire, but he did not erect or fan his tail or give any other display.

This went on for perhaps five minutes, all over the lawn, and the birds were then partly hidden by a rose bush, so that I could not see which took the initiative, but suddenly they were fighting, jumping in the air, beak to beak, pecking and wing-fluttering. Finally the hen drove the cock from the garden and followed herself.

I should add that during the "dance" one or both birds (it was impossible to decide which, as they were so close and there was no beak movement) uttered a rather mournful prolonged whistling note almost continuously. It was a single, unmodulated note.

E. M. BARRAUD.

[This display recalls in its formal character the drill-like movements of several male Blackbirds, to which A. W. Boyd has drawn attention (*antea*, Vol. xxxv, p. 157), in which, however, females do not appear normally to take part.—Eds.]

UNUSUAL NEST OF SWALLOW.

IN June, 1946, I found in a stable at Wistow, Leicestershire, two nests of Swallows (*Hirundo r. rustica*) about a foot apart both attached to a brick wall. The first was a normal cup-shaped nest with a space of about 4 inches between the mud-rim and the roof. The second nest, however, was built-in with mud right to the roof, having just a small semi-circular aperture near the roof for entrance, and much resembled the nest of a House-Martin (*Delichon u. urbica*), though more roughly constructed. Two pairs of birds tenanted these nests and brought off broods successfully.

The stables and all farm buildings are quite isolated and I have never seen House-Martins in the vicinity and this species certainly did not nest anywhere near by. The nests were built in the angle of roof and wall, the latter being an *inside* wall opposite to, and about 12-14 ft. from, the door. The only means of entrance and exit for the birds was through a broken window, as the door was locked at all times. Both pairs of Swallows were observed to feed the young in these nests on several occasions

C. W. HOLT.

COMMON SNIPE SWIMMING.

IN the evening of January 18th, 1948, I was watching a number of Common Snipe (*Capella g. gallinago*) feeding on the open mud at the edge of one of the Tring Reservoirs. The birds were apparently unaware of my presence. Fourteen were in a very compact group with three others at a little distance. These three flew up as if to join the main party, two of them doing so. The third, possibly unable to squeeze in, settled on the water and swam ashore, a distance of some three yards. Later three birds from the group waded into the water until afloat and swam across a three yards wide channel to the next exposed patch of mud. A fourth followed almost immediately. The depth of water where the bird settled was about a foot, the channel considerably deeper. *The Handbook* does not mention swimming for this species.

J. N. HOBBS.

[As remarked in the general note on the waders in *The Handbook*, Vol. iv., p. 154, probably all waders will swim on occasion and for short distances, but we have no other actual record of Snipe doing so when uninjured.—Eds.]

SANDERLING IN NOTTINGHAMSHIRE IN WINTER.

ON February 22nd, 1948, a Sanderling (*Crocethia alba*) was seen by Mr. R. J. Raines, J. Loach and myself at Netherfield Gravel Pond, near Nottingham. The bird was associating with a Dunlin (*Calidris alpina*) and allowed us to approach within eight or ten yards. With the aid of 6x and 8x binoculars, in good light, we were able to note the following details: slightly larger and more active than Dunlin. Upper-parts grey with a few black markings; head, neck and under-parts white; bill and legs black, and a black patch on the carpal joint. In flight the white wing-bar was clearly seen and the call note "wick, wick," was heard.

There was snow on the ground and a strong east wind was blowing at the time.

H. BARLOW.

[Winter records from inland localities are rare, but Mr. A. W. Boyd has one from Cheshire, January 20th, 1912.—Eds.]

BONAPARTE'S GULL IN YORKSHIRE.

ON February 11th, 1948, whilst we were watching birds at Swillington Ing, Yorkshire, our attention was attracted by a small gull with a very dark-coloured head with satin appearance, and whose folded wings were long and narrow, with black primaries, some of which had small white tips. It was swimming amongst Black-headed Gulls and Herring-Gulls. On closer examination it was seen to be slightly smaller than the Black-headed Gulls which were with it. The hood stretched well down on to the hind-neck and appeared black when using the lower powers of the telescopes, but with the highest power it was seen to be very deep slate-grey. With this highest power (50x) it could also be seen that there was white on the eyelids, but so far as could be seen this did not encircle

the eye, being apparently confined to the posterior half. The bill was jet-black. The mantle, back and wing-coverts were of the same shade of pale grey as in the Black-headed Gull. For the first part of the time we watched the bird it was bathing, occasionally flapping its wings, revealing their pale grey undersides. Later it took off and flew round, enabling the colour of the under wing-coverts to be verified and showing a wing-pattern similar to *ridibundus* on both the under- and upper-surfaces of the wing, the latter being pale grey with a conspicuous white fore-wing and black primaries. The remainder of the plumage was pure white, and the tail unforked without any black markings. Its flight was exactly like that of a Black-headed Gull. After circling around it landed amongst the other gulls standing on the mud and started to preen. On land the legs could not be observed very satisfactorily, but appeared to be the same colour as those of the Black-headed Gulls standing near by and may have been deep red, but they were probably discoloured by mud. It was not heard to call whilst under observation. It was watched in good light at 100 yards when swimming and 75 yards range when on land with 6x binoculars and telescopes of the following powers, 15x, 20x, 30x and 50x. Sketches were drawn whilst the bird was in view and notes were made later before consulting any books. The bird was watched for half an hour, after which time it flew off with the other gulls when they were disturbed. We are quite certain of all the details given and they agree exactly with the description of Bonaparte's Gull (*Larus philadelphia*). We might add that both of us are very familiar with the Black-headed Gull in all stages of plumage. This is the first time the bird has been seen in Yorkshire.

K. DAWSON AND F. R. ALLISON.

INLAND BREEDING OF HERRING-GULLS IN CORNWALL.

ALTHOUGH the Herring-Gull (*Larus a. argentatus*) has bred, and apparently still does so, on a number of inland sites in the more northerly part of its range, such inland breeding does not appear to have been hitherto recorded from any other part. It will be of interest, therefore, to record the positive breeding of one pair and the probable breeding of another in two separate disused clay-pits in Cornwall during the summer of 1947.

On July 29th, 1947, as a result of the reported breeding of a pair of "Common" Gulls in a disused clay-pit in the vicinity of Foxhole, I accompanied Mr. Sidney Sheer, the finder of the nest, to a china-stone cliff on the edge of a fair-sized pool. Unfortunately the gulls had gone—Mr. Sheer said he believed the two young were hatched on July 1st—but he showed me the blown shell of an infertile egg he had collected at the nest, and it was typical of *Larus a. argentatus*, being greenish in ground colour and spotted blackish-brown.

The nest, situated about 20 ft. above the pool and about 14 ft.

from the top of the cliff, was composed of grass, bracken stems and rootlets. I collected two pellets which Dr. Turk of Camborne kindly analysed and which contained an adult Weasel's skull, a Mole's skull and manus, and Mole fur. I also collected at the nest a bone which Dr. Turk told me was probably a part of the femur of a pig, presumably carrion collected by one of the adults.

On August 18th, I received a further communication from Mr. Sheer and visited another disused clay-pit about three miles from the first site, and saw about twenty adult Herring-Gulls together with eighteen immatures, and two Great Black-backed Gulls (*L. marinus*). Here Mr. Sheer identified the adult Herring-Gulls with the pair that had bred on the first site. On a grassy ledge about twenty feet above this pool Mr. Sheer showed me another gull's nest composed of grass, twigs, heather stems and rootlets. There was no evidence as to whether breeding took place.

There seems to be no doubt that breeding by one pair and at least nest-building by another pair occurred at two separate disused clay-pits, the first being approximately seven miles from the nearest sea and breeding colony of Herring-Gulls, and the second about four miles.

C. J. STEVENS.

ARCTIC SKUA PURSUING CURLEW.

As there is no mention in *The Handbook* of the Arctic Skua (*Stercorarius parasiticus*) victimizing waders the following may be of interest. On August 16th, 1947, a party of these skuas, apparently a family of two adults, a dark and a light phase, and two juveniles, was watched chasing gulls on the Exe estuary, though with no success. A Curlew (*Numenius a. arquata*) flying across the estuary was pursued by the pale adult, with the rest of the party following a short distance behind. For several seconds the skua closely followed every twist and swerve of the Curlew. The distance was too great for me to see if the wader paid toll, but the sudden check of the skua's flight seemed significant.

R. G. ADAMS.

CARRION CROW TAKING LIVING FISH FROM WATER.—With reference to the recent notes on Carrion Crows (*Corvus c. corone*) taking food floating on water, Mr. S. J. H. Allen informs us that on May 20th, 1948, he saw a Carrion Crow capture a fish in the Thames at Shepperton. It flew slowly from the bank and without any hover seized a fish swimming near the surface. As it dipped its bill to seize the fish its feet and the lower part of its legs were submerged. The fish was definitely alive and could be seen struggling in the bill as the bird rose, without difficulty, from the water.

GREAT SPOTTED WOODPECKER FEEDING ON SHORE IN SKYE.—Mr. W. S. Medlicott informs us that about August 10th, 1947, on the south shore of Skye below high-water mark he saw a Great

Spotted Woodpecker (*Dryobates major*), which was apparently feeding on molluscs, probably mussels. The locality and behaviour suggests that the bird may have been a migrant of the northern race, though the date is early.

KESTREL FOLLOWING PLOUGH.—Mr. P. P. L. Stevenson gives a further instance of Kestrels (*Falco t. tinnunculus*) following the plough (cf. *antea*, Vol. xxxvi, p. 245). A pair of birds persistently followed a tractor plough at Denton, near Grantham, Lincolnshire, for over six weeks in the early autumn of 1947. They usually perched on trees surrounding the fields and came down to the ground whenever "mice" were exposed; these were taken within a few feet of the rear of the plough. Sometimes the birds hovered over the fields and at other times sat on the open ground no more than ten yards from the passing tractor.

SPOTTED REDSHANK IN ANGLESEY AND CAERNARVONSHIRE.—*The Handbook* describes the Spotted Redshank (*Tringa erythropus*) as rare in Wales, and Forrest in his well-known *Fauna of North Wales* (1907) described it as very rare in that part of the country. Dr. N. Cusa reports to us that he and Dr. Plummer saw Spotted Redshanks in Anglesey on a number of occasions in September, 1947, as follows: September 9th, an immature bird on a south-western estuary; September 11th, two in winter plumage on another south-western estuary; September 12th, three in flight over the first-mentioned estuary and later three in winter plumage on the other one; September 13th, one in flight over a south-western estuary and one in winter plumage on east coast. Mr. C. F. Tunnicliffe states that he sees the species regularly in south-west Anglesey in September, usually single birds and commonly immature, but he saw four together on September 25th, 1947. It thus appears highly probable that the previous scarcity of records for North Wales was due to lack of observers.

It is of interest that a Spotted Redshank was also seen by Mr. R. H. Prestwich on the inland sea near Four Mile Bridge, Anglesey, on January 15th, 1948, and two by Messrs. F. L. Miller and E. P. Watkins at Fonyd Bay, Caernarvonshire, at the southern end of the Menai Straits, on January 23rd, 1948. Winter records are uncommon anywhere in the British Isles.

All the above observers have provided full details of identification.

REVIEWS.

Alaska Bird Trails. By Herbert Brandt. (The Bird Research Foundation, Cleveland, Ohio, 1943).

This fine book, of which we have received a copy from Mr. P. A. Adolph, of The Lodge, Ashurst Place, Langton Green, nr. Tunbridge Wells, describes an expedition undertaken by the writer and four companions to study the breeding birds of the Hooper Bay region of the Yukon delta, described as perhaps the richest breeding ground and migration flyway of arctic birds ever discovered. The expedition, sponsored by the U.S. Biological Survey, the Field Museum of Natural History and the Bird Research Foundation, took

place over twenty years ago, but there is no reason to suppose that conditions in this remote region have changed in any important respect in the interval.

This is a book in the great tradition of ornithological exploration. It has something of the pioneering quality of Seebohm's accounts of his explorations in the Old World Arctic; indeed in at least one respect the book has even more the authentic pioneering touch than Seebohm's, for Seebohm was at any rate transported to the scene of his researches on the Yenisei by ship, whereas Mr. Brandt and his companions, in order to reach their goal sufficiently early, had to perform an 850 mile journey by dog sledge through the rigorous conditions and vicious weather of the closing phases of the Alaskan winter. This adventurous journey is vividly described and the account of the spring migration at Hooper Bay, with the arctic ducks passing in tens of thousands on their way to still remoter breeding places and the local nesting grounds filling with fresh arrivals daily of waders, geese, ducks, skuas, divers and other birds, is thrilling.

Apart from the appeal of the book as an account of an ornithological adventure amongst an array of bird-life of extraordinary fascination, the bird faunas of the arctic regions of the New and Old Worlds have so much in common that, even looking at the matter from a more local standpoint, the European ornithologist will find much of immediate relevance to northern ornithology in his own hemisphere. In the chapters devoted to particular species or groups of birds the British reader will meet with species as familiar at least in name and picture as the Snowy Owl, White-fronted Goose, King-Eider, Long-tailed Duck, Pomatorhine Skua, Grey Phalarope, Grey Plover and others (though sometimes under unfamiliar names), as well as species more distinctively American, but yet on the 'British List', such as the Pectoral Sandpiper, Dowitcher (Red-breasted Snipe) and American Golden Plover.

The narrative part of the book is followed by a systematic section, in which the more technical details are given about the birds, their nests and eggs. The European ornithologist may be a little astonished to find the egg-measurements still given in inches. The work is illustrated by some beautiful colour plates and some photographs of the birds, which are of considerable interest even if not always quite up to present-day photographic standards. Some photographs of the country might have been added with advantage.

We understand that copies of the book are obtainable direct from Mr. Adolph at £3 each.

Memoirs of an Artist Naturalist. By George E. Lodge. With 24 plates, 16 in colour. (Gurney and Jackson, 1946). 31s. 6d. net.

In this well produced and attractive volume a number of Mr. Lodge's inimitable paintings of birds are made generally available; the many admirers of his work will need no further recommendation and will probably not trouble to cavil at the somewhat odd choice of title. Nevertheless it had perhaps better be stated that the contents are hardly "memoirs" in the ordinarily accepted sense of the term, which we find defined in the *Oxford English Dictionary* as "a person's written account of his own life . . . an autobiographical record." The contents in fact consist of observations and reminiscences on a quite miscellaneous assortment of topics connected with birds. The opening section deals with hawks and hawkling, a subject on which the author is an expert, and another on game-birds reflects his well-known interest in this group, but some of the material must be admitted to be rather tenuous, amounting to little more than casual jottings, which it is difficult to regard in any other light than that of "padding" for the pictures. We found by far the most interesting the final chapter entitled "Some observations on painting birds", in which the author gives some illuminating glimpses of his methods.

The reproduction of several of the plates in the review copy is faulty owing to the colour printings not being accurately superposed, but another copy which we have seen is free from this defect. A statement that Ospreys occur in Norfolk every winter is no doubt a slip, as Ospreys visit this country in the passage seasons and not normally in winter.

British Sea Birds. By C. A. Gibson-Hill. (Witherby, 1947). 18s. net.

The principal *raison d'être* of this book is clearly its photographs, which are almost uniformly of a high order and include some very successful flight pictures; considering that they were all taken by the author in the course of the single season of 1945 they represent a quite remarkable achievement. The term sea-bird is taken to include the Gannet, cormorants, petrels, shearwaters, terns, gulls, skuas and auks, and all the British-breeding species except the two small petrels are illustrated. For various reasons, and not least the frequently impressive character and setting of their breeding colonies—some views of some of the great bird cliffs in which our islands are rich might well have been included—sea-birds have a special fascination of their own, and many amateur observers will welcome a book devoted to them. It is worth having for the pictures alone and the accounts of the birds and their habits are adequate to their purpose, though the book will hardly qualify as an original source of information on sea-birds. The text gives the impression of having been rather perfunctorily compiled from the most easily accessible sources; it makes practically no fresh contribution to the subject, but it provides a pleasantly written and on the whole reliable outline account of the natural history of the species concerned. Some minor points of presentation could be criticized and it is not completely free from bits of slipshod writing or actual errors which more careful checking should have eliminated, but for the most part these are not serious. It must, however, be pointed out that the treatment of the colour-phases of the Fulmar is quite misleading. There are not three phases, as stated, but an almost complete gradation from dark to light and the term "Blue Fulmar" is applied to the dark bird and not to a supposed "third form" intermediate between the others. Again, the statement that the dark phase "is not known to breed east of Greenland" and "occurs in British waters as a stray from the western Atlantic" is unintelligible, as the headquarters of this form is Spitsbergen. The figures for the percentage of light phase Arctic Skuas in different areas quoted from a footnote in the *Handbook* have been superseded by the much fuller data in H. N. Southern's study in the *Ibis* (1943), which there is little excuse for overlooking. We know of no authority for the statement that dark birds are rarely seen in the Outer Hebrides; if based on an unpublished original observation this should have been stated. Some statements in the introduction about the migration or distribution of several species which require amendment have been noticed by a previous reviewer in the *Ibis* and need not be repeated here.

There is a final chapter on field characteristics, with maps illustrating the breeding distribution in the British Isles which, so far as we have checked them, are accurate and useful.

Birds on the Wing. By John Barlee. (Collins, 1947). 12s. 6d. net.

This book is a product of the author's devotion for some years past to the pursuit of photographing birds in flight. It provides a fine gallery of photographs, taken mostly in Ireland, of a considerable variety of species. Sea-birds predominate, since by reason of their breeding habits they afford the best opportunities of flight photography, and of these the Kittiwake and other gulls, the Fulmar and the Gannet receive most attention; but there are also photographs of swans, geese, Chough, Raven, Peregrine, Heron, Oystercatcher, Curlew, Swift, Swallow and others. Most of the pictures are excellent; many of them convey the general "characters" of the species as seen in flight extremely well and others catch remarkable positions which are too fleeting for the eye to see. Some of the pictures of the Kittiwake in particular are very beautiful, but perhaps the most artistically effective is that of Grey-Lags in flight at evening.

The text is of a popular type and would not be claimed as a contribution to ornithology, but it contains one or two noteworthy observations, especially that which shows (with photographic confirmation) that the Kittiwake sometimes flies with its legs *forwards* completely concealed by the feathers. The Fulmar also at least occasionally does the same.

Bird Life in Cornwall. By B. H. Ryves. (Collins, 1948). 10s. 6d. net.

Rodd's *Birds of Cornwall and the Scilly Islands* (1880) and even the later list by James Clark (1906) in the *Victoria History* of the county being now much out of date, a new work on the subject has been much needed and Col. Ryves's book is very welcome. He expressly disclaims any intention of producing a comprehensive "Avifauna" of Cornwall, though we note with interest that "so desirable a work is under compilation by an experienced Cornish biologist," but the present work is valuable for the interim list (as it might be described) of Cornish birds which it provides and still more on its own merits as a record of original observation. Col. Ryves is well known for his intensive studies of the breeding habits of birds in Cornwall and observations of this type naturally bulk largely in the book, which is divided into two parts. The first, after two useful introductory chapters on Cornish bird haunts and a brief one on sea-bird movements off the Cornish coast, is devoted to detailed accounts of five characteristic Cornish birds, the Chough, Raven, Peregrine, Buzzard, and Montagu's Harrier, which occupy about half the book.

To those acquainted with Col. Ryves's work it is hardly necessary to say that these pleasantly written chapters consist of entirely original material, derived from the experience of many years, and are full of good observations. At the same time he succeeds in conveying to the reader in simple straightforward writing without any of the over-ornate descriptions which mar some bird books, much of the thrill and pleasure which he himself obviously derives from watching birds.

The essay on the Chough provides the most comprehensive account of this bird's life history that has been published. The decline of this species in Cornwall happily ceased about a quarter of a century ago, but it has so far failed to do more than maintain its sadly depleted numbers at approximately the same level. The views of so experienced an observer on the causes of the decrease, which are presumably still operating in a diminished degree to prevent a rise in numbers, obviously merit close attention. We note that Col. Ryves dismisses supposed competition with the Jackdaw as a factor, in which view we entirely concur, and that he agrees with others who have regarded steel rabbit traps set on the cliffs as a major menace, but he also produces evidence—inconclusive but suggestive—that an excessive susceptibility of the younger birds to an unidentified disease may be a contributory cause. In this connexion the fact that pairs of apparently young birds may occupy territories without any attempt at breeding or at any rate without any eggs being laid may be noted, though its significance is doubtful.

Part II is entitled "A Guide to Cornish Birds and their Distribution, with some intimate Notes on their Behaviour." This gives a brief indication of the present-day status of the various species in the county, excluding Scilly (to which, however, there are occasional references), based on the experience of the writer and the records of the Cornwall Bird Watching and Preservation Society. But it also serves as a vehicle for the presentation of a considerable amount of miscellaneous data on the habits and behaviour of birds in Cornwall, including in many cases particulars of the numbers of broods reared, eggs laid and so forth. In the case of most of the less familiar species some descriptive particulars are also included. As these are often scarcely sufficient for certain identification without the assistance of some other book the advantage of including them is not very apparent, but perhaps they help to make the accounts more interesting to less experienced readers. However this may be, ornithologists of all grades resident in, visiting, or interested in Cornwall, will thank Col. Ryves for a readable and informative book, which is at the same time of real scientific value as adding to accurate knowledge of the lives of birds. The book is illustrated by some effective pen-and-ink drawings by R. A. Richardson.

LOCAL REPORTS.

*Somerset Archaeological and Natural History Society. Ornithological Section.
Report on Somerset Birds, 1946.*

This carefully compiled report contains many items of interest. There has been an encouraging increase in the breeding-range of Woodlark and Buzzard, the Pied Flycatcher is evidently well established in the west, and it seems probable that the Garganey, which was present at Blagdon in June, also nested. The first county record of an American Wigeon has already been reported in *British Birds*, as has the occurrence of three Ferruginous Ducks in September. An Osprey on May 23rd, a Spoonbill on May 3rd and both Whooper and Bewick's Swans in January deserve special mention. Duck are recorded in considerable detail; Shovelers were unusually numerous and as many as 450 were counted in January on the Cheddar reservoir; and an adult drake Long-tailed Duck was seen on May 5th. Slavonian Grebes in January, February, March and December were recorded more often than in previous years. An early Jack Snipe was seen at Porlock on August 18th, and, inland, a flock of 14 Sanderlings at Cheddar in May.

The birds of Steep Holm received special attention and two new breeding colonies of Herring-Gull and Lesser Black-backed Gull were formed on Steart Island. Little Gulls were seen in May, November and December. An interesting note on the Black Grouse shows that this bird has apparently become extinct in the Mendips, although still to be found on Exmoor.

A. W. B.

Report of the Oxford Ornithological Society on the Birds of Oxfordshire, Berkshire and Buckinghamshire for 1946. Edited by Miss K. Price. (Holywell Press, Oxford).

This is another good report from the three counties. Of breeding birds Woodlarks have done well near Oxford, where they have only recently become established, but the report on the Hobby is less satisfactory and includes two of the usual deplorable obituary notices; Marsh-Warblers reared a brood at Sandford and Red-backed Shrikes bred in some numbers. Stone-Curlews are said to have been reduced by half in South Berkshire by changes in cultivation, but a flock of 60 in the Chilterns was seen in October. Uncommon visitors include a Raven at Iffley on October 2nd, an Osprey at Blenheim and a Hoopoe at Sandford in September, and a pair of Ferruginous Duck on the Thames in March. Other duck are recorded in detail from Port Meadow, lakes and reservoirs, and some of the less common waders from the sewage farms. A revised version of Mr. W. B. Alexander's valuable Oxford migration table is given after an interval of ten years. Two very early arrivals were recorded in 1946: a Swallow on March 7th at Reading and a Turtle-Dove on April 4th at Rycote, Oxon.

A. W. B.

Report on Dorset Birds, 1946 (with some notes up to May, 1947). By the Rev. F. L. Blathwayt. (Reprinted from *Proc. Dorset Nat. Hist. and Archaeol. Soc.*, Vol. lxxviii, pp. 93-98).

From this report we learn with regret that the well-known heronry at Arne on Poole Harbour, which was the second largest in the country at the time of the 1928 Heron census, has been entirely destroyed. Eight to twelve pairs were reported breeding on an island near Poole. Mr. W. J. Ashford, a well-known Dorset observer, reports that Dartford Warblers were entirely absent in 1945 from all haunts known to him, though Bryanston School reports four pairs in one locality and "present" in another. At least one bird is reported in April, 1947, after the cold spell. Buzzards are reported from a number of localities and at least two pairs bred, probably more. Two Roseate Terns were seen at Abbotsbury on April 15th, as many as eight on May 8th and three on June 23rd. At least one was seen with the breeding terns on the Chesil Beach on June 28th. At least two pairs of Black-headed Gulls bred at Abbotsbury. In the new colony of Kittiwakes at Portland "only about

eight nests seem to have been located, but some 200 birds seem to have been present." A Bee-eater at Askerswell has been recorded in *British Birds*. Marsh-Harriers are reported at Poole Harbour and probably at Abbotsbury, and an eagle of sorts, presumably a White-tailed Eagle, was seen there on August 12th and 31st. More particulars are given about the specimen of the Arctic race of the Ringed Plover recorded in the previous report, and Major W. R. Thompson records that he obtained other examples of this race on Lodmoor, near Weymouth, in 1935. Two Grey Phalaropes are reported on Lodmoor on September 19th, 1945, and one at Charmouth on February 10th, 1947. There are also records of Golden Oriole, Hoopoe, Whooper Swan, Spoonbill, Avocet, etc.

Wiltshire Bird Notes for 1946. Recorder: Ruth G. Barnes. (Reprinted from *Wilts. Archaeol. and Nat. Hist. Mag.*, Vol. li, June, 1947).

This is yet another addition to the list of local reports, to which we extend a welcome. It records the breeding of a pair of Marsh-Warblers near Ramsbury, at least three pairs of Buzzards and possibly one or two more, of Montagu's Harrier (two young reared successfully) and of Shoveler, which has apparently not previously been recorded nesting in the county. Dartford Warblers are stated to have shown no sign of recovery following the winter 1944-45, but pair was seen by another observer in old haunts on October 25th. At least 30-40 Jays were seen between Farley and East Grinstead on January 5th, evidently indicating an immigration of the Continental race, of which it is stated that "some specimens have been obtained by a local gamekeeper in recent years", though we are not told who identified them. A Ruddy Sheld-Duck, which might have been an escape, was seen near Clarendon at the end of April, and nesting of Corncrake in at least one locality is recorded. A Little Bustard in July has already been recorded in *British Birds*. An unusually early Cirl Bunting's nest with three eggs on April 23rd is reported. The recorder expresses the hope that more contributors will be secured in 1947.

LETTERS.

SONG-PERIODS.

To the Editors of BRITISH BIRDS.

SIRS,—Since the publication of *The Handbook of British Birds*, a number of notes have appeared from time to time in *British Birds*, calling attention to gaps or inaccuracies in the charts of Bird-Song which are published at the beginning of the several volumes. As the author, or perhaps I might more truthfully say, the editor, of the charts, I think the time has come when I might usefully comment on these communications.

First, let me point out that, although the statement is made that my charts are based on thirty years of observation, it must be obvious that no one observer could, even if he were free to move his home to a new environment every year, make complete records of all British song-periods in thirty years. For a number of the charts I was indebted to the kind help of observers who had lived, for instance, among the birds of the Norfolk Broads, or on rocky coasts, or among moors and mountains, in none of which places I have spent more than short visits. Some of these observers confessed that they had not kept systematic notes of song-periods, and that their observations were probably somewhat incomplete.

But, quite apart from this, there are certain considerations that need to be borne in mind. First, I think there is no doubt that there is a great deal of individual variation among the individuals of most species, especially in regard to the termination of spring song, and in the extent of autumn song. This feature was very apparent in the Bird-Song Enquiry, published in three parts in Vol. xxxvi of *British Birds*. Some of your readers might like to refresh

their memories by referring to this report. Many of the observers who took part in that enquiry, almost all of them living in the lowlands of Britain, seemed to find that my published song-periods for the common species were too long rather than too short.

This leads to a second consideration. There is much evidence that where a species is exceptionally numerous, the close proximity of many individuals may lead to an unusually large volume of song and some prolongation of the song-period. Thus, whereas my chart shows no time of complete silence for the Willow-Warbler during July, several writers have noted that in their districts the species is silent for almost the whole month. I believe the explanation is that my early observations were undertaken in the Tunbridge Wells district, in an area where Willow-Warblers are exceptionally plentiful. In fact, whatever the cause, some of them did continue their song throughout the month. Again, if I were basing a song-chart of the Hedge-Sparrow on observations in Warwickshire I should make autumn and winter song irregular or even exceptional. But in Kent I used to hear Hedge-Sparrows sing on almost more days of the year than Robins.

I am not at all surprised that observers have noted occasional out of season song from such species as Great Spotted Woodpecker, Snipe, Dabchick and Stock-Dove. It seems likely that occasional song or sub-song from individuals may be expected to occur in almost all months.

Concerning some of the recent records, I should personally have welcomed rather more particulars. I have not lived among Reed- and Sedge-Warblers during the late summer, and I can well believe that in places where they abound they sing rather more than the chart indicates. But I have spent most of my life in places where the commoner *Sylviae*, such as the Whitethroat, are common enough, and in my experience August and September song is only to be heard exceptionally, and usually only in very poor scraps. Mr. John Southern's record of a Garden-Warbler in "good song" on August 10th certainly surprises me. I wonder how long the song was sustained.

Mr. Southern also records individual Song-Thrushes and Blackbirds "in full song" and "in quite good song" respectively in Cheshire in the first half of August, 1947. I should be interested to know how long such song was sustained at a time. I can hardly suppose that Mr. Southern can mean that his two thrushes were singing for hours on end as they do when in full song at the height of the season. But his expression certainly suggests it. During the two years of the bird-song enquiry, some half-dozen observers recorded Blackbird song continuing into August, but none recorded any August Song-Thrush song. I have heard it exceptionally myself, as the *Handbook* chart indicates. In Holland I have heard Blackbirds in the second week of August, in quite good song, singing for at least ten or fifteen minutes at a time, but I have not myself ever heard such sustained song as that in England. I think song from either Blackbirds or Thrushes in early August in any part of England must be considered exceptional, and Mr. Southern's observations, remarkable as they are, do not prove anything to the contrary. If one or two out of a hundred or more individuals are still to be heard singing that could only be described as exceptional. Mr. Southern's observations do, however, suggest that two dots on the chart for August would be more appropriate than one.

I was not in England in the summer of 1947, the year to which Mr. Southern's observations refer, but I understand that it was a hot and dry summer. This makes the observations the more remarkable, since the evidence hitherto available has indicated that Song-Thrushes and Blackbirds in particular tend to prolong their song-periods in damp weather rather than in dry.

Mr. Meiklejohn's note on the autumn song of Rock-Pipits (*antea*, p. 117) seems to indicate that this species has a regular autumn song-period in favourable conditions. It would be interesting to know if there is evidence of a similar autumn song-period among Meadow-Pipits, and if so the extent of its duration. I have never lived in a district where either species is a common resident. As many Meadow-Pipits leave their nesting-grounds in early autumn, I suppose autumn song is less likely with that species. H. G. ALEXANDER.

DANGERS OF NESTLING RINGING.

To the Editors of BRITISH BIRDS.

SIRS,—With reference to the letter by the Rev. John Lees on the dangers of nestling ringing (*antea*, p. 64), may I add the following.

My experience is concerned with ground-nesting birds (waders, etc.) and is this: on two known occasions, once with a young Lapwing, well-grown, with feathers showing through, and once with a young Common Redshank, still in down but very active, the ring, although well secured, would almost certainly have brought about the loss of the chick and in this wise. After the ring was placed on the leg the chicks were released and they made off in answer to the parents' calls. In both cases there was a sudden stoppage and upon investigation a blade of fine, wiry marsh grass was found to have been caught in the join of the ring and to have become firmly wedged. In the case of the Lapwing I released this at once and, after making sure about the clearance of the join, let the bird go again and it soon made off. In the case of the Redshank my friend and I observed the action with a view to finding out whether the bird could release itself. It continued struggling for almost ten minutes, without avail, and all but exhausted itself. The chick was then released and placed with another ringed at the same time, and we made sure that the parents returned to both subsequently. The grass was very fine, wiry marsh grass that had been cropped by sheep and cattle and it would appear that such grass is sufficiently strong to hold a chick and so endanger its life.

After these experiences I always make very sure that the ends of the ring are well secured; I use a pair of fine-nosed pliers to do so, and in cases where the ring is not too well finished—I find that some of them have a considerable burr of the ends—I file these clear before taking the field.

It occurs to me that, although an experienced ringer knows of this, some of the newer ringers may not have encountered this danger and would welcome the information.

JAMES G. WARNER.

THE GAIT OF BÜNTINGS.

To the Editors of BRITISH BIRDS.

SIRS,—With reference to the above (*antea*, p. 96) and the Yellowhammer (*Emberiza citrinella*) in particular, on January 28th, 1948, at Arnside, Westmorland, I watched a small flock of these birds at less than 10 yards apparently feeding on weed seeds in a level field of stubble which had presumably been thinly undersown with various grasses.

Possibly owing to the open weather the grasses were some 3 to 4 inches high, which enabled the birds to travel on the ground beneath the grass, where I was interested to see they adopted a horizontal attitude with the head retracted, advancing in what I described in my note-book as a "ereeping run." I was using 7x binoculars, so that I do not think there was any likelihood of a mistake, but this is the first occasion of which I have any record or recollection of this type of gait in the Yellowhammer, though normally I see the bird on rather a rougher type of ground.

JOHN C. S. ELLIS.

SIRS,—On March 25th, 1948, in North Warwickshire, I watched a hen Yellow Bunting (*Emberiza citrinella*) walk across a smooth tarred road. Her steps were taken rather slowly, perhaps two per second, and were somewhat jerky. She had a very upright stance, held her head high, and did not appear to be seeking any food which might have been blown on to the road. During the period of my observation she walked some four yards. I looked around for her mate, but did not succeed in finding him, and do not consider that her performance was connected in any way with display.

Only a swift run appears to have been observed hitherto. G. W. RAYNER.

SIRS,—With reference to the letter on "The Gait of Buntings" (*antea*, p. 96) on October 24th, 1947, on a track through the heather on the Blackdown Hills, near Culmstock Beacon, Devon, I watched a Yellow Bunting (*Emberiza citrinella*) running through the heather, like a mouse. It

threaded its way through the heather stems for approximately 2 yards, giving me time to admire its yellow head, and to see its white outer tail-feathers when it flew away.

E. M. WILLIAMS.

COURTSHIP FEEDING OF TITS.

To the Editors of BRITISH BIRDS.

SIRS,—In response to your request for further observations on courtship feeding of British tits with special reference to the stage of the breeding cycle (*antea*, Vol. xl., p. 375), I suggest that, so far as this behaviour is connected with the incubation period, generalization is both permissible and advisable.

I refer especially to the Great Tit (*Parus major newtoni*), the Blue Tit (*Parus caeruleus obscurus*) and the Coal-Tit (*Parus ater britannicus*), the species with which I am particularly familiar.

Courtship feeding away from the nest of these three tits is so frequent as to be almost indivisible from feeding on the nest. Further, in regard to the Coal-Tit, it occurs mainly off the nest, and you draw attention to this point.

Whether the cock presents the "love offering" to the hen on or off the nest is largely dependent on the behaviour of the latter. If she decides to sit tight, the cock will enter the nest-hole, but often she will quit her eggs and flutter to him on a perch near by to receive the food. There is considerable variation in the reactions of different hens to the cock's approach, for some readily quit their eggs, while others do not.

A point worth noting is that whereas the cock's attentions are usually very assiduous during the early stages of incubation, they progressively wane as incubation advances, though he may continue to call the hen off to accompany him to feed.

As regards courtship feeding prior to the commencement of incubation, close observations seem to be very desirable to establish to what extent it occurs. But, though it is a simple matter to observe activities at a known nest, it is not so easy to follow a pair of tits as they rapidly dodge about in thick foliage away from the nest. I would hazard the belief that courtship feeding at this stage takes place more often than may yet have been suspected.

B. H. RYVES.

SIRS,—With reference to the note on this subject (*antea*, Vol. xl, p. 375), I may record the following observation. A pair of British Great Tits (*Parus major newtoni*) was watched amongst the trees of an alder-grove near Llanishen, Glamorgan, on April 18th, 1943. The male found a large caterpillar which he first dealt with by banging it vigorously against a branch and nibbling it in his beak. When he considered it sufficiently dead he called the female, using the "teacher" notes. She flew half-way to meet him and he delivered the food, which she received with shivering wings. She evidently did not consider it sufficiently dead, for she subjected it to further bangings and nibblings before she proceeded to tear it to pieces, holding it down with one foot. It is unlikely that at this date these birds had begun nest building.

GEOFFREY C. S. INGRAM.

SIRS,—With reference to previous notes on the courtship feeding of tits (*antea*, Vol. xl, pp. 213-214, etc.), an instance of this in a pair of Great Tits (*Parus major newtoni*) may be worthy of record.

On May 2nd, 1947, a pair of Great Tits started building in my garden at Pease Pottage, Sussex. I saw the female move from the hole to a branch of a tree near by and crouch there with wings drooping and quivering and bill wide open, uttering a shrill plaintive note. The male was not at first in sight, but after about a minute he appeared on the branch beside her, carrying food in his beak. This he thrust into the female's mouth and then he flew off, but returned a moment later and repeated the performance. Both birds then resumed their nest-building.

I. J. FERGUSON LEES.

SIRS,—On April 24th, 1948, I recorded in a Birmingham wood an instance of courtship feeding of the Blue Tit (*Parus caeruleus obscurus*).

The presumed male approached and fed the presumed female who was perching in a crouched position, quivering her wings and uttering a prolonged wheezy trill. The male then left and the female stopped calling and resumed a normal stance. On the male's return, the ceremony was repeated. After this, both birds flew off to another part of the wood. G. W. RAYNER.

SIRS.—The following observation may be of some interest:—

On May 5th, 1947, a presumed male Blue Tit (*Parus caeruleus obscurus*) while feeding on some rose-bushes in my garden at Benfleet, Essex, suddenly dropped to the ground and passed something to a presumed female, of the same species. The female crouched and opened her mouth as the male alighted, but there was no wing movement, and she uttered no sound during the procedure.

A nest-box in the garden, fifteen or so yards distant, was being occupied by a pair of this species, but as the above feeding took place in this pair's territory, it seems probable that it was the same pair. There were, at this time, seven eggs in the nest-box, after which four more were added in the course of five days, bringing the total to eleven. P. PLACE.

[It is now amply established that feeding of the female away from the nest during incubation is of quite regular occurrence in all the five common British species of tits, so that it is unnecessary to publish further instances, but we should still welcome records of this behaviour where it can be shown to have taken place prior to the start of incubation or where there is at least a strong presumption to that effect.—Eds.]

IVY SEEDS IN NEST OF SONG-THRUSH.

To the Editors of BRITISH BIRDS.

SIRS.—With reference to the note by Col. Ryves on this subject (*antea*, p. 151), I have often found quantities of ivy seeds in nests of Song-Thrush. Actually I used to be more puzzled by the identity of these carmine-coloured objects than by how they got there and it was not until recent years when examining Wood-Pigeon crop and gizzard contents that I learned what they were.

As far as I remember most, if not all, nests holding ivy berries were in, or very near to, ivy. I wondered vaguely if mice could have been the cause. I agree with Col. Ryves that it is out of the question that they could have been evacuated by the nestlings, but that they were disgorged seems no more probable, for if so why are not other disjecta found.

Apart from the usual deposit of feather scales I have found nothing—that is of course within a short time of the young leaving. I cannot remember seeing ivy seeds in nests when ringing nestling Song-Thrushes. I too would welcome the views of other observers.

GUY CHARTERIS.

SIRS.—I read with interest the note by Col. B. H. Ryves (*antea*, p. 151), concerning ivy seeds found in the nest of a Song-Thrush. In the years 1941-45, I examined numerous nests of both Song-Thrush and Blackbird, and found the presence of these seeds a regular feature of the nests in the early part of the spring. I then concluded that the seeds were disgorged by the nestlings, but found no definite proof; I examined about 25 faecal pellets of nestlings of all ages, but found no trace of seeds. The possibility of the seeds being discharged as separate faecal units should not be overlooked, though it seems most unlikely.

ROLAND RICHTER.

SIRS.—It is quite common in some years for ivy berries to be found in nests of the Song-Thrush; 1938 was the most noticeable that I can recall. I spent that spring observing on the Halston estate in Shropshire and came upon many examples of it. Often the rim of the nest was completely covered with seeds and there were many more on the ground beneath. The sitting bird looked fine framed in this ring of seeds. I am as sure as can be that the seeds are from the food of the old bird, as in most instances I found them on nests with unhatched eggs. On April 4th, 1938, I counted more than 200 seeds on one nest. I saw other "decorated" nests the same day, but did not count the seeds. I saw several Blackbirds' nests in the same state that spring, but Song-Thrushes were more common.

J. H. OWEN

NOTICE TO CONTRIBUTORS.

British Birds accepts papers and notes dealing with original observations on the birds of the British Isles and Western Europe or, where appropriate, on birds of this area as observed in other parts of their range. Review articles on subjects of current ornithological interest will also be considered.

Contributors are asked to observe the following points, attention to which saves the waste of much editorial time on trivial alterations.

MSS. if not typed should be clearly written. Authors of papers, especially those containing systematic lists, lists of references, tables, etc., should consult previous papers on similar lines in *British Birds* as a guide to general presentation and set-out, including use of particular type, stops, and other conventions, such as date following the month (January 1st, etc., not 1st January), names of books and journals in italics, not inverted commas, and so on. Capital initial letters are to be used for proper names of definite species, but not for names used in a general sense or covering more than one species: thus "Great Tit," but "flocks of tits." [In systematic lists the whole name should be in capitals]. The scientific name (underlined in MS. to indicate italics) follows the English name in brackets without any intervening stop. Scientific nomenclature follows *The Handbook of British Birds* or H. F. Witherby's *Check-List of British Birds* based on this. When the subspecific name (if this is used) repeats the specific name the initial letter only should be used for the latter; otherwise the whole name should be given in full: thus "*Parus m. major*," but "*Parus major newtoni*."

Notes should be drawn up in as nearly as possible the exact form in which they will be printed, with signature in BLOCK CAPITALS, and the writer's address clearly written *on the same sheet*. If more than one note is submitted each should be *on a separate sheet* with signature and address repeated. Though suitable headings and scientific names can be added by the Editor, if necessary, they should be inserted by authors as far as possible. Communications should always be as concise as possible, though reasonable detail can be given where this is important. Notes or records of subsidiary importance may be abbreviated or otherwise modified by the Editor for inclusion in the section of "Short Notes." Maps or graphs must be *neatly* and *boldly* drawn in Indian ink, with due allowance for reduction when necessary.

Photographs are accepted primarily as illustrations of papers or notes, but good prints of species rarely or not previously photographed or illustrating important points of habits, behaviour or field characters will also be considered on their own merits.

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Short notes accepted for publication without material alteration are not acknowledged by post except by special request, but proofs are submitted to the writers in due course. Authors of *papers* receive 20 separate copies free of charge. Any additional separates required must be ordered when returning the proofs and be paid for by the author.

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of droppings on the neighbouring rocks that would have indicated that a number of Ravens had taken part.

However, there is no lack of evidence that the abundant food provided by man, in the quantities of sheep that die in the snow every winter or as the result of it, forms an important item in the food of the Ravens in the Lake Counties. I think, however, that false conclusions have sometimes been drawn from this fact, one being that when a flock of Ravens is seen during the daytime, and carrion is known to be in the vicinity, the observer concludes that the latter is the cause of the flocking. As an example of this in Lakeland I must mention that A. W. Boyd has stated in *British Birds* that the flocking together of 31 Ravens near Esk Hause on April 14th, 1933, was caused by the presence there of a number of dead sheep. But I must differ from him in thinking that this was the cause of the flocking. The fact is that a flock of roughly the same number, and presumably the same birds, was present in this region some weeks earlier before the snow had melted, and I saw them again when the snow had gone and every carcass was uncovered, and they were there in seasons both before and since. I have seen a wandering flock of Ravens in six years out of fifteen prior to the war, haunting the summits and ridges of the Central Group. Furthermore I have seen them nearly always in spring, the one season when carrion is in greatest abundance and there is therefore no reason for birds whose normal habit is to feed singly or in pairs, to flock together for food. If ever there was a time when Ravens had no need to flock for food, that time was the spring of 1947, when, following the severest winter and snow conditions in living memory, that killed a million sheep, carcasses lay ready for the picking on every fellside throughout the North. Yet on April 6th, 1947, and again on the 11th, a gathering of Ravens, which were never all in sight at once and which we could only estimate at between 30 and 50, were moving slowly over the chain of peaks from Crinkle Craggs to Great End. I watched them for hours on both days and never once saw any of them touch the carcass of a sheep; they were doing what flocks of Ravens in my experience are nearly always seen doing—simply idling! I can think of no more descriptive word to use although they do it with much activity. Ravens are experts at this occupation, finding something to employ their restless energy during all the hours of daylight. They do not sit perched on a crag for hours at a time as do Peregrines and Buzzards, nor like them delight in soaring for long periods at great heights just, it would seem, for the joy of flight. Ravens are always looking for something, whether for food or play, now on one side of the hill then on the other, now making short flights between walking and pecking about among the rocks, then beating into the teeth of the wind for a distance and with manifest ease, only to rise in circles high above the fell and drift back again. That with variations for aerobatics, soaring round each other in circles and some squabbling, is how the flocks

were behaving on the eighteen occasions that I have watched them. All these were during the daytime, but one on March 1st, 1931, was not quite typical in that it was seen at sunset and on comparatively low ground (1,600 ft.). Returning down the Kentmere valley in late afternoon on a day when the snowdrifts lay deep on the fells, and the sky, after the blizzard of the morning, was clear and ablaze with sunset, I thought I saw some Ravens fly into Buck Crag, a small rock at the top of Garburn Pass. Going up to investigate we saw fourteen Ravens, perched in seven pairs, while as we watched more came flying up the ridge from the south. The Ravens kept returning to this rock after joining the birds which were working slowly along the western side of the hill, and which kept coming into view as in different parties they rose in spiral flight, flying round and round each other with much croaking. How many there were we could only guess; 37 were in sight together and a few minutes later others rose into view at other points; there were probably 50 to 60 in all. These birds were moving along so slowly that they could not have reached any regular roosting-place known to me before nightfall, so they probably roosted in Buck Crag or in crags somewhere along the High Street range where there is no regular communal roost.

The most noteworthy points observed in all these instances are:

- (i) that part of each flock was seen to consist of pairs,
- (ii) that the birds were nearly always seen idling, not feeding,
- (iii) that no flock remained long at one point, but that all were working slowly along over the tops, and
- (iv) most flocks were seen in March or April when the supply of carrion is most abundant and there could be no need to flock for food.

FREQUENCY OF FLOCKING.

The third widely-held theory that the flocking of Ravens is an unusual event, is less easy to deal with than the other two. The direct evidence that would settle this question is not often come by except at roosting-places, for several reasons. One is that these gatherings seem to keep to the high ground in Lakeland, being most often seen working along or drifting over some lofty ridge or summit around 3,000 ft., and only twice in my experience below the 2,000 ft. contour. Another is that the mountain area of Lakeland over which a roving flock might wander is about six hundred square miles in extent, while the area of the adjacent parts of the northern Pennines is as much again; so that though a man might be on the hill every day throughout many years he would only see the flock at long intervals, except near a roosting-place.

Although I have watched flocks of Ravens during the daytime on eighteen occasions I have spent many hundreds of days on the hill without seeing any such gatherings, so the idea that the flocking of Ravens is unusual may seem to be justified. However, for

reasons that may be seen above and for others that, to keep this discussion within bounds, I must not mention here, I believe the truth is that the flock of Ravens, or it may be there is more than one in Lakeland, is in existence throughout the year.

CONCLUSION.

Briefly stated, the view I hold is that on any given date the Raven population is divided into two categories:—(1) The breeding pairs, mated for life, that hold the same territories year in year out (this I have proved over many years), and (2) birds that for a period of years do not breed, although a proportion of them are seen to be paired. It is these birds that wander about the hills in flocks and make use of communal roosting-places.

I think it is possible that some birds in category (1) may join the nomad flock or form a flock for short periods, although I have little evidence that would point to this except the behaviour of the Ravens seen on October 10th, 1925, which suggested that they were local residents attracted to the gralloch, rather than a nomadic flock.

Perhaps it may be that Ravens are by nature gregarious and will live and feed in flocks whenever food is sufficiently abundant to enable them to do so. But I doubt if field observation over such an area as the hills of Lakeland and the northern Pennines would ever provide enough evidence to prove such a theory, and some of the observed facts seem to be against it. In any case it would not explain the significant point that flocks are seen at a time of year when the breeding pairs are occupied with their eggs or young. One is faced with the conclusion that certain factors, among which prolonged adolescence may be one, cause a part of the Raven population to live in flocks, and these flocks wander over the hills which contain the breeding territories of the remainder of the population.

The presence of *pairs* in a flock of non-breeding birds in the breeding season is only one of the problems concerning the Raven that are raised by the facts I have described. I have gathered some little evidence on the hill towards their solution, but the presentation of it will occupy more space than is available here.

I may add that the flocks of Ravens that I have watched were seen in these areas:—three on the High Street range, two on the Helvellyn range, eleven on the Central Group, one on the Furness Fells and three on the Westmorland Pennines.

No doubt there are other haunts of these nomad Ravens, over the ridges of Gable and Steeple, among the Ennerdale hills, or on the Skiddaw group, or where the summits of Grasmoor and Whiteside hold their memories of the Dotterel; but as yet my wanderings on those fells have not been rewarded by the sight of many Ravens drifting over the skyline, nor by their voices, the deep, far-sounding voice which is so much a part and symbol of the space and freedom of these high hills.

REPORT OF THE BIRD-RINGING COMMITTEE*

PROGRESS FOR 1947.

A. LANDSBOROUGH THOMSON, C.B., D.S.C.

Chairman of the Committee.

THIS is the eleventh report† issued on behalf of the Bird-Ringing Committee of the British Trust for Ornithology, continuing the earlier sequence published under the title “*The British Birds Marking Scheme*”.

MANAGEMENT.

The headquarters of the scheme remain in the British Museum (Natural History), by permission of the Trustees, and rings are inscribed “BRITISH MUSEUM NAT. HIST. LONDON”. The work there has continued to be done by the Honorary Secretary of the Committee, Miss E. P. Leach, to whom all concerned must feel most grateful for her unremitting attention to the task and her highly competent handling of the scheme. Thanks are due to the Hon. Mrs. Leo Russell for help in analysing figures and preparing the tables for this report.

FINANCE.

To cover the increased cost of rings, the charge for the double-ended pattern for shearwaters has had to be increased to 15/- per hundred, and that for G.H. and No. 5 rings to 18/- per hundred. The charge for other sizes remains at the flat rate of 9/- per hundred. The accounts are published biennially in the Report of the British Trust for Ornithology.

METHODS.

Apart from the ban on Game-birds of any age, the Committee has decided that nestlings of all species except Goldcrest, Long-tailed Tit and Wren may now be ringed. This amends Instruction 5 on the reverse of the ringing schedules.

An illustrated manual on trapping methods had been prepared for the Committee by Mr. P. A. D. Hollom just before the war, and arrangements for publishing this are now in hand.

A meeting of ringers and others interested was held at the offices of the Zoological Society of London on March 6th, 1948, under the auspices of the British Trust for Ornithology. After opening statements by the Chairman of the Committee and by Dr. David Lack, on the value of ringing in the study of migration and of other problems respectively, there was an open discussion in which many speakers took part. Points raised have

* A publication of the British Trust for Ornithology.

† The previous report was published in *Brit. Birds*, Vol. xl, pp. 268-272.

been or are being considered by the Committee. The meeting was the first of its kind, but it is hoped to hold others at suitable intervals in future.

PROGRESS OF RINGING.

The number of birds ringed in 1947 exceeded the 1946 total by 11,000. Skokholm Bird Observatory heads the list with just over 6,000. The London Natural History Society's list shows the greatest variety of species, 55 in all; and Messrs. Cowin, Crellin and Ladds in the Isle of Man come second with 49. The three Observatories (Skokholm, Spurn Head and Isle of May) all show approximately the same number of species, the figures being 44, 46 and 43 respectively.

The newly organized Halifax Zoological Group, led by Mr. George Edwards, deserves special mention and has done well in its first year with over 300 birds and 27 species. Among these is a Green Sandpiper, the first to be ringed under the scheme, and Mr. Edwards shares with Mr. Adam Watson the responsibility for ringing the first Dotterel. An Icterine Warbler ringed at Spurn Head is another new species to the list. Shovelers bred in the Isle of Man, and three of the young birds which were ringed have already been shot in Ireland.

RECOVERIES.

Hitherto, only one British-bred Starling had been recorded from the Continent, but a second was recovered in Belgium in 1939 after being ringed by Mr. G. R. Mountfort in Sussex in the same year: the information about this bird was delayed on account of the war. A Greenfinch ringed in Hertfordshire by Major-General Wainwright last February was recovered alive in North Yorkshire early in March and the indication is strong that this was the first example of a Continental visitor to come to notice, not only from the direction and length of its flight but also from the description of the finder, who kept it in his aviary for a few days and noted signs of migratory urge such as constant wing fluttering: when released it flew away with straight and purposeful flight.

A Spotted Flycatcher ringed at the Isle of May was found dead in North Portugal shortly after. Although unfortunately the date of recovery has not been exactly determined it was certainly before the end of September, and the bird was last seen at the Isle of May on the 17th of that month. A Redwing ringed at Shrewsbury in the winter of 1946-47 was found dead in the same place the following winter. A Robin from Spurn Head in October appeared in the Bristol area in February and seems likely to have been a Continental visitor; and a Cuckoo ringed at the same place in August was recovered in September at Genoa. Two more Kittiwakes from the Farne Islands have been found in Newfoundland.

Cases of longevity are a 16 year-old Sandwich Tern, a 13 year-old Lesser Black-backed Gull and a 12 year-old Curlew.

PUBLICATION OF RESULTS.

The following publications have been made under the auspices of the Committee since the last report:—

- I. Werth (1947). "The tendency of the Blackbird and Song-Thrush to breed in their birthplaces." *Brit. Birds*, Vol. xl, pp. 328-330.
E. P. Leach (1947) "Recovery of Marked Birds." *Brit. Birds*, Vol. xl, pp. 360-368.

NUMBER OF BIRDS RINGED.

					<i>Trapped.</i>	<i>Nestlings.</i>	<i>Total.</i>
In 1947	...	...	...	...	14,574	14,007	28,581
„ 1946	...	...	...	...	8,909	8,412	17,321
„ 1945	...	...	...	...	1,875	5,419	7,294
„ 1944	...	...	...	...	1,183	5,313	6,496
„ 1943	...	...	...	...	660	3,920	4,580
„ 1942	...	...	...	...	1,301	3,266	4,567
„ 1941	...	...	...	...	3,109	3,990	7,099
„ 1940	...	...	...	...	14,974	6,208	21,182
„ 1939	...	...	...	...	27,983	27,834	55,817
„ 1938	...	...	...	...	24,162	26,162	50,324
From 1909 to 1937	...	...	...	...	...	...	575,914
Grand Total (including arrears)							780,402.

INDIVIDUAL TOTALS FOR 1947.

	<i>Trapped</i>	<i>Nest- lings</i>	<i>Total</i>		<i>Trapped</i>	<i>Nest- lings</i>	<i>Total</i>
Skokholm Bird				R. H. Poulding	187	152	339
Obs. ...	3632	2386	6018	M. W. and N.			
A. Darlington ...	602	481	1083	Ridley ...	42	287	329
Wildfowl Inq.				Lord David			
Committee ...	1039	—	1039	Stuart ...	74	254	328
R. M. Band ...	397	502	899	R. H. Brown ...	10	298	308
R. Carrick ...	551	131	682	Bruce Campbell	81	224	305
Oxford Orn. Soc.	530	139	669	G. Edwards and			
Spurn Bird Obs.	607	33	640	Halifax Zool.			
I. of May Bird				Group ...	248	56	304
Obs. ...	485	131	616	R. F. Dickens ...	183	118	301
F. D. Walls ...	98	475	573	P. F. Hill ...	2	262	264
Clayesmore Sch.	360	186	546	C. B. Wainwright	224	38	262
Cowin, Crellin, &				F. J. Brown ...	181	70	251
Ladds ...	66	479	545	Dauntsey's Sch.	241	4	245
John Lees ...	385	143	528	J. D. Mills ...	209	18	227
London N.H.S.	246	263	509	R. Chislett ...	190	36	226
Shrewsbury Sch.	248	247	495	E. Cohen ...	58	168	226
J. J. Boon ...	20	380	400	W. Howe ...	4	216	220
Edward Grey				R. Storer ...	207	6	213
Inst. ...	20	346	366	A. Cross ...	34	171	205
A. E. Billett ...	157	206	363	Midlothian O.C.	5	198	203
T. R. Goddard...	—	345	345	P. A. Rayfield...	67	133	200

	Nest-				Nest-		
	Trapped	lings	Total		Trapped	lings	Total
A. W. Boyd ...	158	40	198	D. R. Anderson	39	23	62
H. M. Rogers ...	35	156	191	A. E. Male ...	17	44	61
Brooker and Cawkell ...	—	190	190	Abbotsholme Sch.	15	45	60
F. M. Gurteen ...	147	42	189	J. Southern ...	56	3	59
R. A. Hinde ...	—	188	188	B. M. Kidd ...	5	52	57
Adam Watson...	41	136	177	O. A. Dod ...	37	18	55
R. A. Richardson	48	124	172	E. H. Webb ...	43	12	55
G. F. Raeburn...	12	147	159	F. C. Gribble ...	12	41	53
E. G. Holt ...	124	28	152	Ackworth Sch....	28	25	53
R. E. Williams...	32	117	149	Mmes. Anscombe and Read ...	1	49	50
P. V. Robinson	96	52	148	P. A. S. Hirst ...	32	17	49
L. A. Cowcill ...	96	51	147	A. H. Smith ...	3	43	46
R. Elmes ...	70	77	147	C. P. Rawcliffe	—	44	44
K. R. Chandler	3	133	136	F. W. Fox ...	17	26	43
J. Bartholomew	7	124	131	L. A. Pownall...	3	39	42
"Wippletree" ...	27	101	128	S. Sporne ...	10	32	42
Cheltenham Coll.	13	111	124	J. Barnes ...	28	13	41
D. R. Mirams ...	79	45	124	K. G. Spencer ...	4	37	41
Lundy Bird Obs.	97	22	119	H. E. Jenner ...	7	33	40
D. Goodwin ...	37	80	117	Blundell's Sch....	5	34	39
G. Hughes-Onslow	—	114	114	W. J. Eggeling	39	—	39
M. G. Barnard- Hankey ...	98	11	109	I. M. Goodbody	36	3	39
M. C. Glasman...	8	100	108	H. van den Bos	8	30	38
B. Astin ...	—	107	107	C. W. Ellis ...	2	35	37
Uppingham Sch.	19	87	106	Miss Henderson	36	—	36
Zool. Soc. Lond.	50	52	102	Kingswood Sch.	4	32	36
Sedbergh Sch. ...	10	91	101	N. Redfern ...	—	36	36
T. G. Walker ...	96	—	96	A. R. Lucas ...	33	—	33
Mrs. Upton ...	50	44	94	W. Rankin and Birkenhead Sch.	7	25	32
P. Davis ...	18	73	91	J. Weaving ...	10	21	31
J. W. Wainwright	76	13	89	Bedford Sch. ...	9	20	29
Leighton Pk. Sch.	79	9	88	H. O. Bunce ...	28	1	29
R. F. Ruttledge	—	86	86	M. Martin-Harvey	1	28	29
Oundle School...	—	83	83	W. Fiddian ...	28	—	28
Sherborne Sch.	6	70	76	A. J. Harthan ...	20	8	28
A. N. Sykes ...	76	—	76	Hayward and James ...	18	9	27
Lord Bute ...	73	—	73	C. T. Stevenson	27	—	27
L. G. Weller ...	49	16	65	E. A. Armstrong	18	8	26
K. Brown ...	2	61	63	G. F. Dixon ...	11	15	26
J. P. Kyd ...	43	20	63	Miss Whitaker	25	1	26
R. Murray ...	37	26	63				

Sixty other Ringers marked smaller numbers.

NUMBERS OF EACH SPECIES RINGED.

RECOVERED

	1909 to 1946	1947		Grand Total	of those ringed 1909-46		
		Trapped	Nest- lings		Total	Per- centage	
Raven ...	295	—	11	11	306	27	9.2
Crow, Carrion ...	1938	3	174	177	2115	94	4.9
Rook ...	5105	29	30	59	5164	261	5.1
Jackdaw ...	4246	96	87	183	4429	212	5.0
Magpie ...	1409	8	130	138	1547	53	3.8
Jay ...	653	4	36	40	693	44	6.7
Chough ...	59	—	1	1	60	3	5.1

VOL. XLI.] REPORT OF BIRD-RINGING COMMITTEE. 299

NUMBERS OF EACH SPECIES RINGED.

RECOVERED.

	1909 to 1946	Trapped	1947 Nest- lings	Total	Grand Total	of those ringed 1909-46	Per- centage
Starling	70604	2912	221	3133	73737	3210	4.5
Greenfinch	31454	230	497	727	32181	2466	7.8
Goldfinch	642	8	19	27	669	9	1.4
Redpoll, Lesser	629	1	5	6	635	6	1.0
Linnet	10800	28	151	179	10979	72	0.7
Bullfinch	1768	8	59	67	1835	62	3.5
Chaffinch	34473	698	421	1119	35592	1517	4.4
Brambling	1036	26	—	26	1062	41	4.0
Sparrow, Tree-	2600	22	33	55	2655	88	3.4
Bunting, Yellow	6239	35	166	201	6440	415	6.7
Bunting, Reed-	2127	13	80	93	2220	95	4.5
Lark, Sky-	3756	4	20	24	3780	48	1.3
Pipit, Tree-	1994	5	85	90	2084	5	0.3
Pipit, Meadow-	5882	157	100	257	6139	130	2.2
Pipit, Rock-	769	61	22	83	852	36	4.7
Wagtail, Yellow	1200	37	58	95	1295	4	0.3
Wagtail, Grey	970	1	68	69	1039	2	0.2
Wagtail, Pied	7125	56	135	191	7316	103	1.4
Shrike, Red-backed	966	1	13	14	980	4	0.4
Flycatcher, Sptd.	3653	42	73	115	3768	14	0.4
Flycatcher, Pied	1698	30	273	303	2001	10	0.6
Chiffchaff	1102	36	48	84	1186	7	0.6
Warbler, Willow-	11077	288	103	391	11468	59	0.5
Warbler, Wood-	1117	4	49	53	1170	2	0.2
Warbler, Sedge-	1474	22	65	87	1561	7	0.5
Warbler, Garden-	1388	24	10	34	1422	5	0.4
Blackcap	1027	12	52	64	1091	2	0.2
Whitethroat	5433	211	36	247	5680	63	1.2
Thrush, Mistle-	5320	40	51	91	5411	120	2.3
Thrush, Song-	70882	339	529	868	71750	1469	2.1
Redwing	968	18	—	18	986	7	0.7
Ouzel, Ring-	629	1	32	33	662	6	1.0
Blackbird	62262	1231	694	1925	64187	3094	5.0
Wheatear	2142	73	118	191	2333	52	2.4
Whinchat	1807	3	31	34	1841	12	0.7
Stonechat	1074	—	6	6	1080	7	0.7
Redstart	2508	35	87	122	2630	18	0.7
Robin	23948	661	254	915	24863	2326	9.7
Sparrow, Hedge-	15408	220	108	328	15736	1437	9.3
Wren	3873	33	16	49	3922	31	0.8
Dipper	1796	23	121	144	1940	24	1.3
Swallow	47848	54	1032	1086	48934	429	0.9
Martin, House-	12964	30	254	284	13248	83	0.6
Martin, Sand-	4963	225	13	238	5201	30	0.6
Swift	1156	58	41	99	1255	68	5.9
Kingfisher	762	1	10	11	773	33	4.3
Cuckoo	844	8	30	38	882	22	2.6
Owl, Little	827	14	25	39	866	73	8.8
Owl, Long-eared	258	1	—	1	259	9	3.5
Owl, Barn-... ..	721	1	23	24	745	80	11.1
Owl, Tawny	1231	4	65	69	1300	74	6.0
Falcon, Peregrine	110	—	—	—	110	13	11.8
Merlin	308	—	8	8	316	54	17.5
Kestrel	1117	5	35	40	1157	116	10.4
Buzzard	460	1	13	14	474	19	4.1

NUMBERS OF EACH SPECIES RINGED.

RECOVERED

	1909 to 1946	1947		Total	Grand Total	of those ringed 1909-46	
		Trapped	Nest- lings				Per- centage
Hawk, Sparrow- ...	793	5	67	72	865	110	13.9
Heron, Common ...	2350	—	56	56	2406	302	12.9
Duck, Sheld- ...	478	5	1	6	484	23	4.8
Mallard ...	7023	35	12	47	7070	1127	16.0
Teal... ...	4474	920	4	924	5398	538	12.0
Wigeon ...	430	28	—	28	458	68	15.8
Duck, Tufted ...	282	20	—	20	302	58	20.6
Goosander ...	52	—	—	—	52	10	19.2
Cormorant ...	2489	—	334	334	2823	545	21.9
Shag ...	1994	2	120	122	2116	201	10.1
Gannet ...	11044	218	598	816	11860	396	3.6
Petrel, Storm- ...	633	270	2	272	905	44	7.0
Shearwater, Mx. ...	23278	2846	1308	4154	27432	1171	5.0
Petrel, Fulmar ...	553	12	9	21	574	4	0.7
Pigeon, Wood- ...	3904	2	260	262	4166	166	4.3
Dove, Stock- ...	853	5	55	60	913	70	8.2
Dove, Turtle- ...	731	3	11	14	745	76	10.4
Curlew, Common ...	3386	6	89	95	3481	139	4.1
Woodcock ...	5410	1	2	3	5413	414	7.7
Snipe, Common ...	1816	6	23	29	1845	90	5.0
Dunlin ...	133	5	2	7	140	1	0.8
Sandpiper, C. ...	996	13	46	59	1055	4	0.4
Redshank ...	2525	3	34	37	2562	81	3.2
Plover, Ringed ...	1633	21	34	55	1688	21	1.3
Plover, Golden ...	381	—	1	1	382	9	2.4
Lapwing ...	42137	22	746	768	42905	916	2.2
Oyster-catcher ...	2026	8	214	222	2248	88	4.3
Curlew, Stone- ...	260	—	7	7	267	10	3.8
Tern, Sandwich ...	18435	4	274	278	18713	324	1.8
Tern, Roseate ...	461	—	90	90	551	1	0.2
Tern, Common ...	19847	10	442	452	20299	475	2.4
Tern, Arctic ...	3236	4	101	105	3341	15	0.5
Tern, Little ...	910	—	34	34	944	8	0.9
Gull, B.-headed ...	14386	129	16	145	14531	704	4.9
Gull, Common ...	2395	90	91	181	2576	97	4.1
Gull, Herring- ...	8915	45	481	526	9441	253	2.8
Gull, L. Bl.-bkd. ...	10991	19	495	514	11505	427	3.9
Gull, G. Bl.-bkd. ...	694	—	48	48	742	29	4.2
Kittiwake ...	2224	34	58	92	2316	32	1.4
Skua, Great ...	649	—	7	7	656	24	3.7
Razorbill ...	5242	137	241	378	5620	122	2.3
Guillemot ...	2695	57	50	107	2802	64	2.4
Puffin ...	5867	154	33	187	6054	95	1.6
Crake, Corn- ...	580	6	1	7	587	9	1.6
Moorhen ...	1939	28	24	52	1991	61	3.1

SOME NOTES ON THE NESTING HABITS OF THE PRATINCOLE

BY

G. K. YEATES.

(Plates 47-51).

THE following notes on the Pratincole (*Glareola p. pratincola*), supplemented by a few observations from 1937, were made on a visit, in company with Mr. W. E. Higham and Mr. H. A. Patrick, to the Camargue, South of France, in May, 1947. The colony was located at Les Grandes Cabanes and consisted of about a dozen pairs.

Habitat. The breeding-ground was typical of the species, a flat expanse of mud, cracked into a jig-saw pattern by the baking heat of the sun, and with low, withered clumps of stunted *Salicornia* growing at scattered intervals. In the deltas of these southern rivers there are many square miles of this type of ground, but the species seems very faithful to its chosen localities. Thus in 1947, ten years later, a radius of 150 yards would have embraced also all the nests of 1937 when I first discovered the colony—an interesting piece of conservatism when one considers the many acres of apparently equally suitable ground all round. I understand from local ornithologists that, except for 1938, the birds have nested every year on this exact spot. They say the same, too, of the other known Camargue colony at Tour du Valat, first located in 1938 and occupied annually ever since.

This habitat, in the Camargue at least, they share with Stone-Curlew (*Burhinus æ. œdicnemus*), Ashy-headed Wagtail (*Motacilla flava cinereocapilla*), Lapwing (*Vanellus vanellus*), Tawny Pipit (*Anthus c. campestris*), Kentish Plover (*Leucopolijs a. alexandrinus*) and, in 1937 at least, with Black-winged Stilt (*Himantopus h. himantopus*)—for the last, a very dry choice of nesting ground for a bird so closely associated with water.

Nesting. All the nests I have seen have always been placed in a slight hollow—either an old cattle-hoof mark or in a patch of withered vegetation—at the edge of a flimsy and low clump of *Salicornia*, and never completely in the open on the bare mud. While it is true to say, as *The Handbook* does, that no real nest is made, yet all nests examined by me have had signs of rudimentary attempts at “architecture” in the form of small, dead stems of salt-marsh vegetation, rabbit droppings and small flakes of dried mud. These are too numerous in the immediate vicinity of the nests to be considered entirely fortuitous, and their use in nest-relief display (see below) makes me think that they are probably part of a courtship ceremony earlier on in the cycle of reproduction.

Final clutches in all cases numbered three eggs. Laying begins in early May. In 1937 most nests held one or two eggs on May 6th, and all were complete by May 9th. In 1947 incubation was

in progress at all nests when I first saw the colony on May 16th.

General Behaviour. Pratincoles are temperamental birds—in the air noisy and dynamic; on the ground very silent and sleepy. They will stand for hours doing nothing, and only at the time of nest-relief have I ever heard a bird on the ground utter a note. Disturbed and flushed, they are, however, in the air at all times very noisy and active, dashing at great speed in wide circles round their nesting ground. They are equally noisy and intolerant when a possible predator such as Marsh-Harrier (*Circus a. aeruginosus*) or Black Kite (*Milvus m. migrans*) passes by. I have seen both these species mobbed ruthlessly.

Their capricious nature is, however, best seen in a strange habit to which, as far as I can find, only Bentley Beetham (*Among Our Banished Birds*) has referred. At times the whole colony, both sitting birds and those standing about “on guard”, will take to the air and after screaming round the territory vanish. To my cost in 1937 I found that nests may be “deserted” for as long as six hours in the day, unattended by either sex. Such behaviour was not confined to nests which were asked to bear the alarming presence of a “hide”, but was found also with pairs which had nests at least 150 yards off. The whole colony in fact vanished, and except for the occasional brief visit of the odd bird, no nests were visited during that period. In 1937 I regarded this as probably due to the fact that incubation had only just started, but subsequent experience in 1947, Bentley Beetham’s evidence and correspondence with other ornithologists make me regard it as a normal habit of the species. Lt.-Col. J. K. Stanford informs me (*in litt.*) that he has notes of similar baffling behaviour in two species of Indian Pratincoles (*G. maldivarum* and *G. lactea*). I tried to discover where the birds went and what they did during these frequent absences, which, as incubation progresses, get shorter in duration and do not necessarily affect the whole colony at one and the same time. I got no further than to find two “assembly-grounds”, one about one-quarter mile away, the other about three-quarter mile away, both dry, parched bits of ground. Here they became silent and stood about doing precisely nothing! A large hatch of grasshoppers was, however, occurring near one of these meeting places, and I have little doubt the cause is the occurrence of a plentiful local food supply.

Displays. “Injury-feigning” has often been recorded, and apparently with chicks it becomes very frantic. I have not seen Pratincoles with young, but a quieter form of “feigning” disablement occurs commonly while incubation is in progress. The sitting bird stands near the nest, with wings at full stretch as though shielding chicks from the sun. Very occasionally they are flapped, but for the most part they remain motionless, while the head turns from side to side in anxiety. When the intruder gets too close, the bird runs ahead of him with wings still outstretched. Even this mild form of “injury-feigning” does not

always occur, and at its best is a very half-hearted and unconvincing performance.

Both sexes incubate, and nest-relief is attended by a very rigid ceremony. The male bird, arriving to take over duty on the nest, dips low in flight over the sitting female. To this she responds with upstretched head and a harsh call. He then alights about two feet from the nest, instantaneously bowing to her, beak to ground and tail stuck high into the air and wings momentarily poised above his back. The hen meantime rises from the eggs, picks up small pieces of *Salicornia* or small flakes of mud and throws them over her back on to the nest. She then walks off and he on to the eggs.

The ceremony preceding coition was rather more elaborate. The cock as before dipped to the sitting female and alighted about four yards away, immediately depositing food. To this the female ran and quickly devoured it. The cock then as before postured with wings up-raised and beak to ground. The hen adopted a precisely similar attitude. She then turned round, ruffled her neck-feathers and stretched out her neck. Thereat the male mounted her and with motionless wings enfolding her, mated. He held this position for an appreciable time, jumped down, and the female returned to the eggs.

Birds meeting away from the nest but near it adopt various postures which are to a greater or lesser degree merely variants of the above displays.

A NOTE ON SUN-BATHING BY BIRDS

BY

NOBLE ROLLIN.

(Plates 52-54).

SEVERAL recent communications to this journal have drawn attention to the widespread occurrence of the habit of sun-bathing amongst birds. The question has been raised whether irradiation of the skin can take place through sun-bathing, with its consequent effect of vitamin D production. Dr. Lloyd-Evans, quoted in a report compiled by John Gibb on "Sun-bathing by birds", (*antea*, Vol. xl, pp. 172-174) mentions this, but an editorial note to this does "not think that the fluffing out of the feathers *would* expose the skin to the direct rays to any appreciable extent". Prof. V. C. Wynne-Edwards, in a letter (*antea*, Vol xl, p. 256) dealing with various aspects of the subject, states that direct irradiation of the skin is usually impossible in both birds and mammals because of their thick coats.

In 1932 I made observations on, and took photographs of, the sun-bathing of Jackdaws (*Corvus monedula spermologus*) and Chaffinches (*Fringilla cœlebs gengleri*), and other species. These were on tame birds kept at the Bird Research and Educational Station, Glanton, Northumberland, to supplement observations on wild birds. The Jackdaws were completely free. The Chaffinches were in a large aviary. The general impression was that the birds tried to allow the rays of the sun to reach the base of the feathers. In an extreme form of head and neck bathing in the Jackdaws, I am satisfied that the rays did penetrate to the skin. In achieving this the bird extended its neck and turned its head partly away from the sun. This stretching of the skin on the sun side helped the feathers to separate and stand up. The posture is illustrated in Fig. 1. The bird has its eye closed, presumably to keep out the bright sun.

As to more typical attitudes: Chaffinch sun-bathing is shown in Figs. 2 and 3, where different individuals have both used a favourite sunning spot. It will be noted how standardized is this particular sun-bathing posture; the two individuals having adopted almost identical poses. Fig. 2 is the more extreme form with the bill open. The attitude illustrated in Figs. 2 and 3 is probably one of the typical ones for Passerines in general. The birds also sunned themselves frequently without posturing. A Chaffinch in Fig. 3 (left) is doing this. Though not necessarily typical, Fig. 4 is a good Jackdaw example of sunning without the extreme sun-bathing posture.

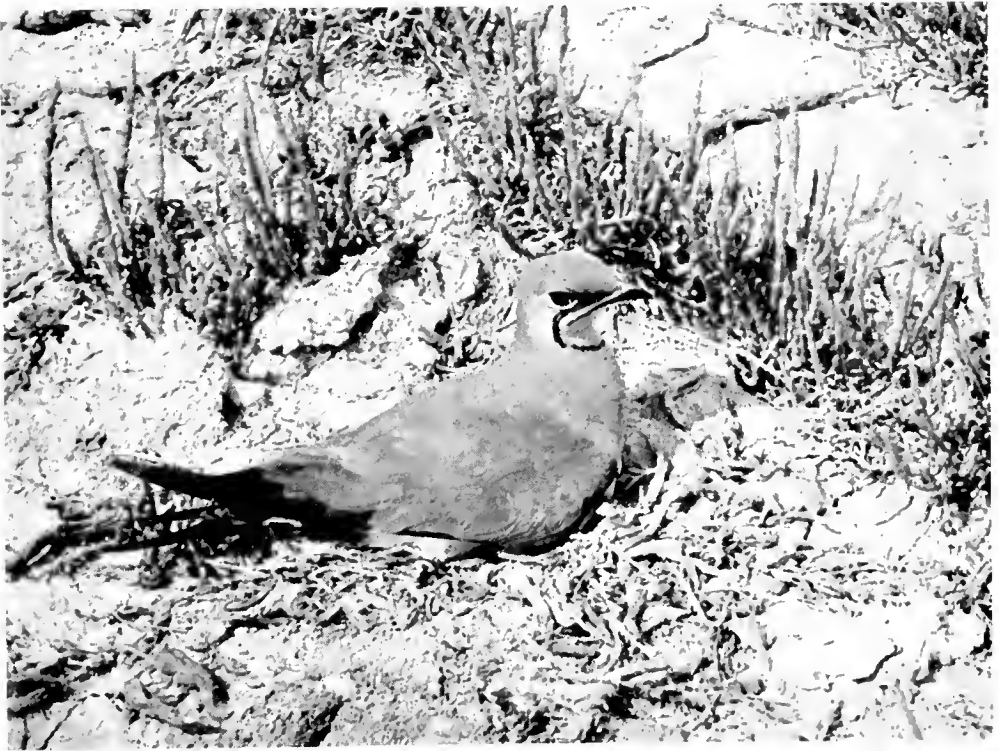
A wild Blackbird (*Turdus m. merula*) and Hedge-Sparrow (*Prunella modularis occidentalis*) were observed in the Station in 1947, deliberately taking up certain positions, on several days, where they sunned themselves without posturing. The Blackbird



PRATINCOLE (*Glareola pratincola*) APPROACHING NEST.

CAMARGUE, 1947.

(Photographed by W. E. Higham).



PRATINCOLE (*Gareola pratincola*).
CAMARGUE, 1947.

UPPER.—APPROACHING NEST.
(Photographed by H. A. Patrick).

LOWER.—ON NEST.
(Photographed by G. K. Yeates).



PRATINCOLE (*Glareola pratincola*) ABOUT TO SETTLE ON EGGS.

CAMARGUE, 1947.

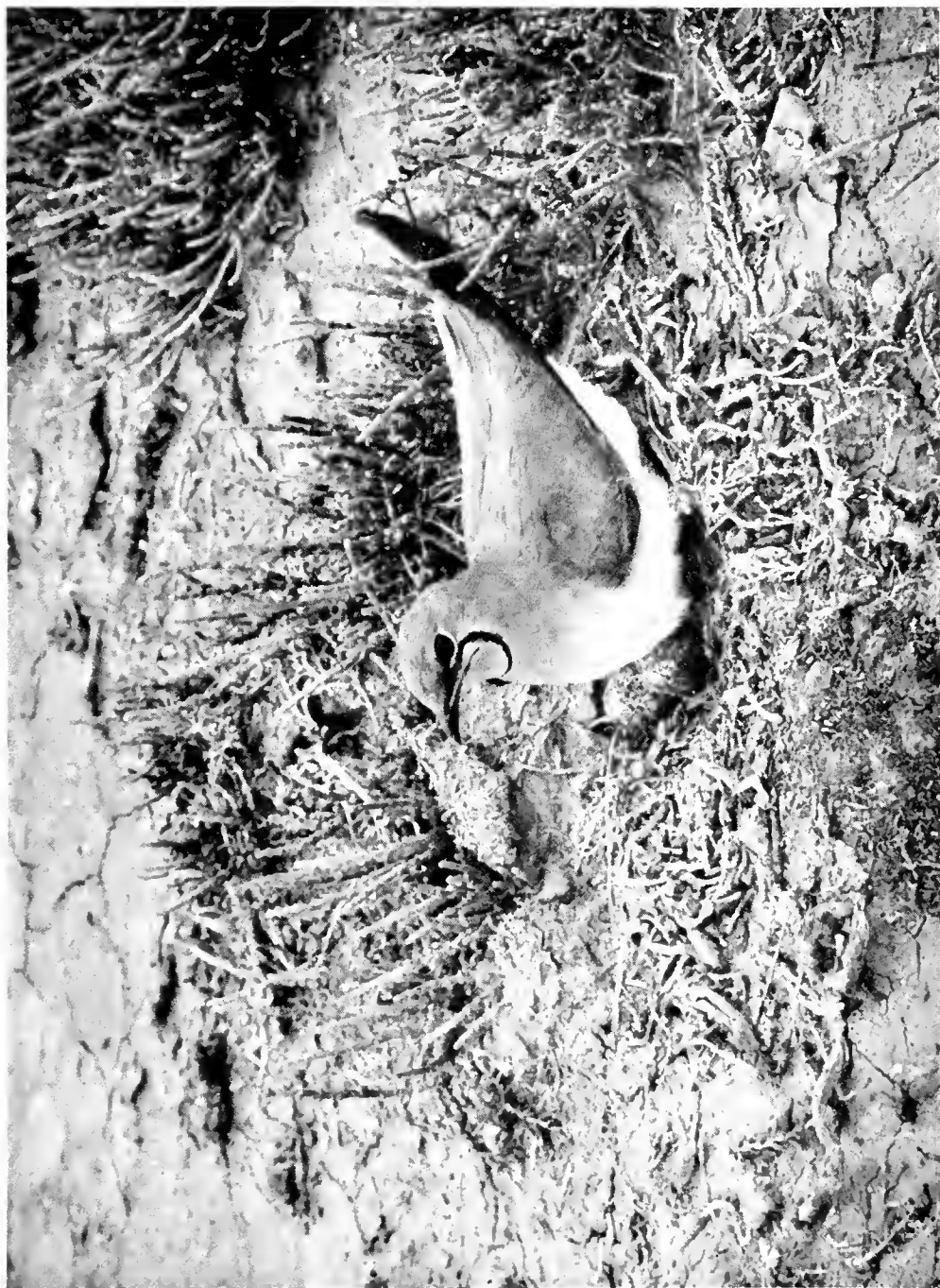
(Photographed by G. K. Yeates).



PRATINCOLE (*Glareola pratincola*) AT NEST.

CAMAROU, 1947.

(Photographed by G. K. Yeates).



PRATINCOLE (*Glareola pratincola*) AT NEST.

CAMARGUE, 1947.

(Photographed by G. K. Yeates).



FIG. 2. CHAFFINCH SUN-BATHING.

A TYPICAL POSTURE.

(Photographed by Noble Rollin).



FIG. 1. JACKDAW SUN-BATHING.

(Photographed by Noble Rollin).



FIG. 3. CHAFFINCHES SUN-BATHING: A TYPICAL POSTURE (RIGHT) AND WITHOUT POSTURING (LEFT).

FIG. 4. JACKDAW SUNNING WITHOUT EXTREME POSTURING.
(*Photographed by Noble Rollin.*)

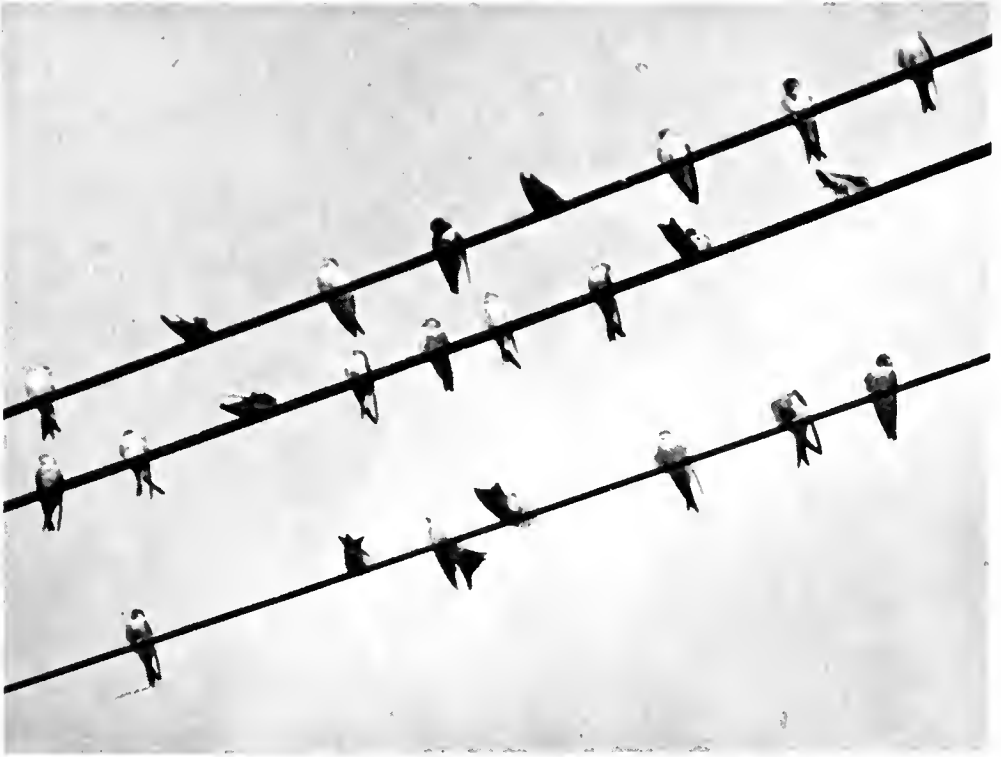


FIG. 5. HOUSE-MARTIN SUN-BATHING: A BIRD POSTURING ALONE (NEAR CENTRE, ON BOTTOM CABLE) AMONGST A GROUP OF OTHERS.

FIG. 6. LESSER BLACK-BACKED GULL SUNNING WITHOUT EXTREME POSTURING.
(Photographed by Noble Rollin).

was just about at the end of its singing season. The Hedge-Sparrow combined sub-song with its sunning. It might be added that in the summer of 1947, in the Station, sun-bathing posturing of wild Blackbirds was so frequent as hardly to call for special note. Adult and juvenile birds took part, though it was more frequent in the case of the juvenile birds.

In August and September, 1947, House-Martins (*Delichon u. urbica*) collected on the electric cables along the west and south sides of the Station area. These numbered up to about six hundred. They showed relatively little sun-bathing posturing, even in hot sunshine. Occasionally individuals postured, and one of these can be seen near the centre of the bottom cable in Fig. 5. It was the only one posturing amongst a large number of birds. A portion of them preferred to sun themselves, without exaggerated posturing, on the warm slates of adjacent buildings.

Tame gulls kept at the Station (mostly Black-headed Gulls, *Larus r. ridibundus*; Herring-Gulls, *Larus a. argentatus*; and Lesser Black-backed Gulls, *Larus fuscus graellsii*) were never seen to go into sun-bathing postures, though they sunned themselves. Fig. 6 shows a juvenile Lesser Black-backed Gull sunning itself without normal sun-bathing postures. This bird was completely free. Tame waders (Knots, *Calidris c. canutus*; Redshanks, *Tringa totanus britannica*; Ringed Plovers, *Charadrius h. hiaticula*; Lapwings, *Vanellus vanellus*) were also never seen to go into sun-bathing postures. Living normally unshielded from the sun, it is perhaps natural that gulls and waders should be less susceptible to the sun-bathing urge.

NOTES.

"ANTING" BY STARLINGS.

WITH further reference to the note published (*antea*, p. 60) under this heading, my wife and I witnessed an amusing communal "anting" episode in our garden at 15.00 hours, G.M.T., on May 16th, 1947, by seven Starlings (*Sturnus v. vulgaris*).

We were having lunch when our curiosity was aroused by the noisy sounds of squabbling Starlings. On looking out of the window we saw seven Starlings fighting for the possession of a fairly large black ant mound of which there are several amongst the plants in the rockery. Continually driving each other off the mound, the Starlings had little time for peaceful "anting", but each one was determined to have a share in the spoils.

The ants were picked from either (1) the mound, (2) the stalks of the plant round which the mound had been formed, (3) the Starlings themselves. I observed, at close range, through 8 x 30 prismatic binoculars, one Starling in particular, picking ants off both tarsi and placing them by a downward movement of the bill through the secondary and primary feathers of its wings.

During the hustling and bustling for possession of the mound some of the Starlings were also seen eating the ants. The whole episode lasted several minutes, when the birds suddenly took flight.

R. E. WILLIAMS.

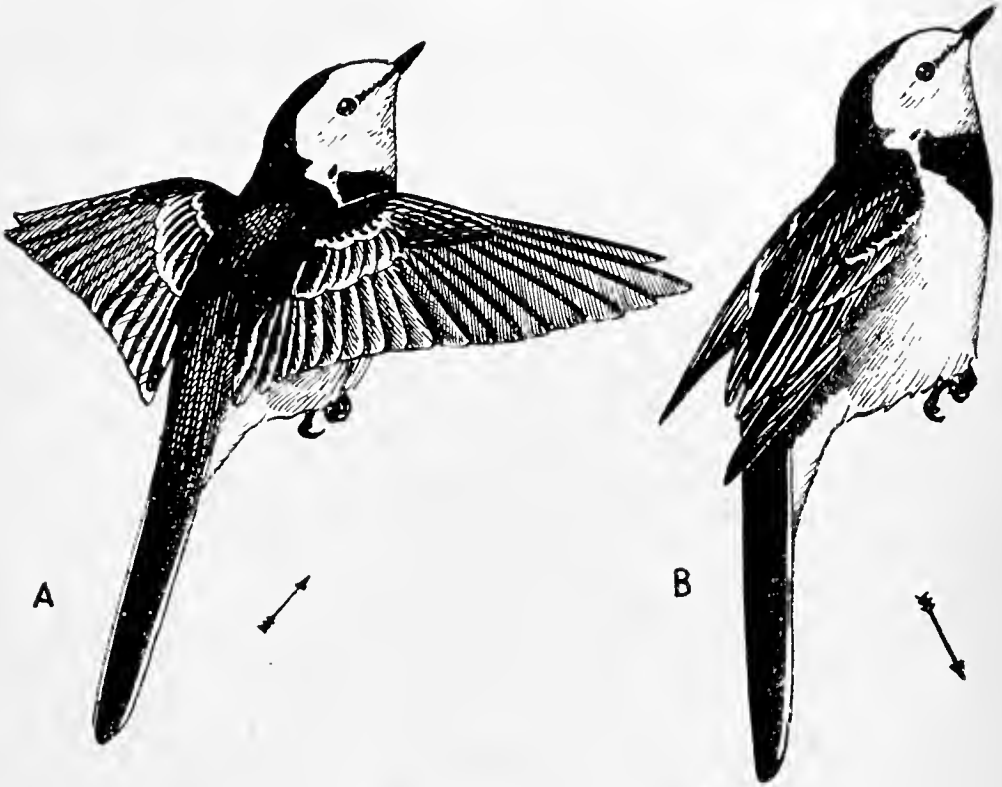
DISPLAY OF PIED WAGTAIL.

ON December 15th, 1947, while on the Bure river-meadows at Aylsham, Norfolk, I witnessed a most remarkable display by two Pied Wagtails (*Motacilla alba yarrellii*) unlike anything recorded in *The Handbook*.

They approached the meadows together, the male frequently uttering the sweet, ringing "tru-sink" before and after they had alighted on a raised bank of sludge and debris dredged from a tributary sewage ditch during the summer. Almost immediately both birds began to mince about with short uncertain steps, the male on the bow of a punt and the presumed female, evidently a first-winter bird as the face was suffused with yellow, on the bank about ten yards away, often making curt little bows with their heads and constantly turning this way and that. The male then flew towards the "female" with a comically exaggerated undulating flight quite low across the ground with body and head held stiffly upright, *closed* tail pointing straight downwards and the wings *shut* during each descent. On being thus approached the "female" also "bounced" away in a like manner and alighted a few yards on, while the male bird pitched by the spot "she" had just vacated. Both birds then repeated the bowing actions for a few seconds before the male "bounced" back to his perch on the punt and the "female" to her original position left vacant by the departure of the male. This continued for quite three minutes, during which

time both birds were silent and looked just as though they were hopping on their tails, kangaroo-fashion.

Of the rather inadequate sketches A attempts to portray the appearance of either bird during the wing-fluttering ascent of each undulation, and B the shut-winged descent and the curiously strained attitude of head and tail.



POSITIONS IN FLIGHT OF DISPLAYING PIED WAGTAIL.

(Drawn by R. A. Richardson).

I subsequently watched a shorter but otherwise identical performance by two Pied Wagtails at Perth on May 16th, 1948.

Another form of display not recorded in *The Handbook* was seen by me at Aylsham during March or April, 1947 (the exact date is unfortunately lost). Two birds were seen to alight on the roof of Aylsham Church, the female in the normal way, followed closely by the male parachuting down at a steep angle, pipit-like but quite silently, and joining the female on the roof.

R. A. RICHARDSON.

DISPLAY OF COAL-TIT.

ON February 15th, 1948, I was attracted to the front garden of a house in Colinton, Edinburgh, by a curious high-pitched whirring song. For some moments I could not locate the source, but it appeared to come from fairly low down. The bursts of song were much prolonged and were quite different from anything I had

heard before. There was something almost suggestive of machinery about the sound.

I eventually discovered a Coal-Tit (*Parus ater britannicus*) perched with its body-feathers fluffed out, wings extended and shivering constantly. There was a beechen hedge in the garden and the bird was holding a shred of dead beech leaf in its bill. *The Handbook* does not mention such behaviour and none of the details given under "Voice" accurately fit the type of song. The notes could hardly be described as rasping, as recorded by D. N.-Thompson (*The Handbook*, Additions and Corrections, Vol. v. p. 263).

A second bird, presumably the female, was seen in the hedge, but unfortunately I disturbed it, and it took flight, the male following. They did not return, nor did I hear a repetition of the display song from any other quarter.

W. G. TEAGLE.

ON February 29th, 1948, at Tooting, London, I was watching a pair of Coal-Tits (*Parus ater britannicus*). The hen was hopping from twig to twig in a food-begging posture, crouching, vibrating half-opened wings, and uttering persistent long-drawn wheezing notes. The cock, perched about 15 feet away, appeared not to notice. The hen dropped to a lower branch and began hunting for food, whereupon the cock launched himself from his twig and, with wings and tail spread to their fullest extent and held rigid and horizontal, glided slowly for a distance of about 20 feet, deviating slightly in order to pass within a few inches of the hen. When he settled he began feeding in company with the hen as though nothing unusual had happened. *The Handbook* records a gliding display flight for the Blue-Tit (*P. cæruleus*) only.

COLIN J. O. HARRISON.

WHITE-HEADED LONG-TAILED TIT IN SUSSEX.

ON January 22nd, 1948, in the vicinity of Handcross, Sussex, I saw a Northern Long-tailed Tit (*Ægithalus c. caudatus*). In flight the pale appearance was very striking. It stayed in the branches of an oak for about ten minutes, when the "snowy" whiteness of head, cheeks and nape was exceedingly noticeable, also the paler appearance of the wings, due to the wider margin of white on the secondaries.

Walpole-Bond (*History of Sussex Birds*) mentions two or three white-headed birds seen near Eastbourne in the winter 1921-22.

J. ALAN SMITH.

[There seems no good reason for not accepting a sight record of this very well-marked form, when the bird is well and clearly seen and described, as in the present case. The only element of doubt—which applies equally to records based on specimens obtained—is in respect of the subspecific name which can properly be applied to such birds, since, as Stresemann has shown (*Beitr. Zoogeograph. paläarkt. Reg.* (1919), and cf. *Handbuch d. deutsch. Vogelkunde*, Bd. 1, pp 234-5), white-headed birds occur with more

or less frequency in populations of the so-called Central European race, *Æ. c. europæus*, which he regards as a mixed stock of inconstant characters occupying the region between the range of the true northern *Æ. c. caudatus* and the dark-headed races of the west and south of Europe.—Eds.]

WINTER CHIFFCHAFF SONG.

ON January 25th and 27th and on February 1st and 3rd, 1948, short bursts of song of a Chiffchaff (*Phylloscopus c. collybita*) were heard in garden at Newton Ferrers, S. Devon. The weather, though mild, had been boisterous and the song was only heard for a minute or two, while the bird was not seen.

On February 9th, in the same place, in warmer, sunnier conditions, Chiffchaff song was frequent throughout the morning and three birds were seen, though only one was heard singing at a time. The song was confined to the "chiffchaff" phrase with no trace of the low-pitched, grating intervening note characteristic of later seasonal song. Song continued till February 17th, but none was heard during the week of cold weather with snow which then set in. After this I was away for some days, returning on March 5th to hear song resumed. Although I listened carefully for song elsewhere, song from the first (presumed) spring arrivals was not heard until March 14th.

O. D. HUNT.

[Although Chiffchaffs sing freely in their normal winter-quarters in the Mediterranean countries, there appeared to be no records of winter song in England when *The Handbook* was written. Since then winter song has been recorded in the *Cornwall Report* on January 31st and February 26th to 28th, 1941 (different localities), February 14th, 1943, February 5th, 1944, and February 19th and 26th, 1945.—Eds.]

THREAT DISPLAY OF WILLOW-WARBLER.

ON two occasions in 1947, I observed Willow-Warblers (*Phylloscopus t. trochilus*) performing an interesting threat display directed in each case against me as an intruder, at Catterick Camp, Yorkshire.

On May 16th, 1947, I disturbed a Willow-Warbler from a thicket. It flew into a hedge only a few feet from me, and faced me with bill half open, neck and head stretched forward, wings held slightly arched and half raised, and the whole body stretched out, making the bird look long and thin. Having stopped to watch this attitude, I was amazed to see the bird fly straight at me with a gliding, restrained flight, rise close over my head and flutter down into a bush behind me. The threat was so direct, that my immediate reaction was to duck, though the bird would have flown over my head anyway.

On June 18th, 1947, I was approaching a nest with young, when they all took to flight with much noise and commotion. The adult birds immediately flew down in considerable excitement, one chasing a young bird into the grass. Within a matter of seconds,

when the young had scattered, they turned their attention to me. Both birds flew close past me, one dropping to the ground and scuttling along the path as though to lead me away, the other taking up a similar attitude to that described above, on the branch of a hedge. It perched low on the branch, its whole body stretched out facing me, this time calling the alarm note, "hooeet", continuously, with the wings held out arched and level with its back. The sudden flight of the young from the nest had obviously been a strong stimulant to the reaction of display, which had been directed primarily to the young, and secondarily against me.

In both cases the noticeable features were the threatening attitude from a perch, the nature of the flight, rather slow, on wings never fully stretched, almost bat-like, and the deliberate direction of the flight so close to my body. The whole was in both cases a most convincing performance of threat

C. K. MYLNE.

LATE SONG OF REDSTART AND RED-BACKED SHRIKE.

ON August 17th, 1947, at Llandrindod Wells, Radnorshire, we heard a Redstart (*Phœnicurus ph. phœnicurus*) singing, and on August 20th at the same place we heard the song of a Red-backed Shrike (*Lanius c. collurio*). It is uncommon to hear the song of either of these species in autumn in Britain

D. J. MAY AND J. O. OWENS.

COITION AND DISPLAY OF HOUSE-MARTIN.

SINCE Gilbert White wrote (letter xvi to Daines Barrington, 1773) that "they tread in the nest frequently during the time of building" there seems to have been no other reference to coition in the House-Martin (*Delichon u. urbica*). *The Handbook* has no section on Courtship and Display for this species.

A dozen or more pairs of House-Martins nest annually under the eaves of a building in Egham, Surrey. I thought that I heard some calling over the building on May 7th, 1947, but it was not until the following day that I saw them. At about 9.30 a.m. G.M.T., I was attracted by the sweet bubbling song coming from under one of the eaves and found two birds on the remains of an old nest. These were facing one another, making frequent pecks at the nest, and between whiles lifting their heads so that their bills touched. The male was singing; the other bird, presumably the female, shivered her wings from time to time; otherwise both birds were quiescent. Eventually the male flew on to her back and, keeping himself in position by vigorously flapping his wings, copulated with her. Immediately both birds flew off. A few minutes later they returned again, at first facing in the same direction, but shortly resuming the relative positions of the previous occasion. Here they behaved much as before for a long while until the behaviour was again terminated by coition. They returned a third time a little later, settling opposite one another but closer together (one bird actually higher than and over the

other). This bird, the non-singer so presumably the female, after a short period of similar behaviour, made a movement as if coition was intended, but flew off and the male followed.

The episode was not only of interest intrinsically, but also as suggesting that the birds may arrive paired, or at least pair up in the air before coming back to their nest-buildings. But it is difficult to imagine pair formation occurring without attachment to a static object, and it is even possible that the nest site is the actual pairing station.

Also of interest was the element of pecking at the nest involved in the display. Since both sexes build, this may have been indicative of the beginning of the reaction which, as it appears, follows coition; next day the pair were building spasmodically in the afternoon.

A few other notes made in the course of the nest building period may also be mentioned. As the birds come to the nest with mud, the normal twittering changes into a more pronounced chatter. On one occasion both birds of the pair flew together on to the nest, where at least one of them sang for a short while. Sometimes three birds will fly up to a nest without more than one of them entering; this may be some form of mutual stimulation, but another incident suggests that it is aggressive. After one such flight, two of the birds landed on their respective nests only a few feet from each other and commenced a burst of song. D. J. MAY.

DISPLAY BEHAVIOUR OF LESSER SPOTTED WOODPECKER IN WINTER.

ON November 5th, 1947, at Aylsham, Norfolk, I was watching a male Lesser Spotted Woodpecker (*Dryobates minor comminutus*) on a dead oak branch, and imitated its typical, shrill, "kee-kee-kee-kee-kee" on a plover-call whistle. The woodpecker immediately started drumming (surely a late date?)—not the staccato rattle and long pauses of the breeding-season, but a prolonged whirr, interrupted briefly by one-second intervals. The drumming lacked the power of the spring performances and could just be heard at 100 yards, but it was, nevertheless, very definitely "drumming".

After about half a minute I noticed the bird stop and glance acutely to one side, spreading the tail at the same time. Another Lesser Spotted Woodpecker had arrived in the same tree, but of what sex I could not be sure. The male launched himself at the second bird with a butterfly-sailing flight on motionless wings and on alighting kept his wings fully spread and slightly raised. This silent chase was repeated once or twice before the birds disappeared into the trees. R. A. RICHARDSON.

MOORHEN AS PREY OF TAWNY OWL.

ON March 25th, 1947, during the severe weather, I found the remains of a freshly-eaten Moorhen (*Gallinula ch. chloropus*) beneath the roost of a Tawny Owl (*Strix aluco sylvatica*) at

Aylsham, Norfolk. The complete tail and a leg have been preserved. Other Moorhen remains were found in a cavity of the same tree, a hollow Beech, about four years ago, which suggests that this particular owl habitually preys upon them, no doubt those enfeebled by starvation during hard weather.

This prey is not recorded in *The Handbook*. R. A. RICHARDSON.

BEHAVIOUR OF WHOOPER SWAN.

IN view of the note on acrobatic behaviour of the Mute Swan (*Cygnus olor*) (*antea*, p. 25), in which it was stated that similar observations had not previously been recorded for swans, the following may be of interest.

On March 14th, 1938, on Thompson Water, near Thetford, Norfolk, I watched a pair of Whooper Swans (*Cygnus cygnus*). One of the birds was busily preening its scapular and back feathers and frequently interrupted this to stretch forwards its neck along the water and roll over sideways on to its back, with feet kicking in the air.

This would appear to be a similar performance to that described for the Mute Swan. E. L. ARNOLD.

GADWALL, PINTAIL AND POCHARD BREEDING IN KENT.

IN 1946, J. G. Harrison (*South-Eastern Bird Report* for 1946, p. 34) observed a pair of adult Gadwall (*Anas strepera*) and some young birds on the Cooling marshes on August 29th. As the young were by then on the wing this could not be claimed as a definite record of breeding, though we have notes of a pair in the same area in April and early May. On June 29th, 1947, we flushed a duck Gadwall from a small pool and Mr. L. C. Batchelor, who was just ahead of us, saw several downy young not over a week old disappear into cover. Both the duck and a drake flew round in a state of great agitation and constantly returned to the pool for a few minutes, leaving no doubt that the young belonged to them. Later, on July 26th, the pair were seen by Batchelor with six full-grown young birds. So far as we know this is the first proof of breeding in Kent and the record is of particular interest on account of the behaviour of the drake, which was not only in attendance but exhibited all the signs of anxiety shown by the duck. "Injury-feigning" was not observed.

The breeding of a Pintail (*Anas a. acuta*) in the same area was suspected in 1946, a male being seen as late as June 2nd. In 1947, Gillham flushed a duck with small young on June 15th and noted her reddish-brown cap. Both female and young dived and took to cover in the reeds. On June 29th the female was flushed again and watched at very close quarters both on the water and in flight. Three or four young, about two-thirds grown, were seen for a moment before they reached cover. A party of four young was seen in flight by Dr. J. S. Carter on July 13th. The female on June 29th constantly flew up from the water and fluttered excitedly

for a few yards, then took short flights low over the land uttering a deep "quuck quuck" and even ran about for short distances on land. The elaborate behaviour did not include any form of "broken-wing trick". Though breeding has taken place in south and east Kent this appears to be the first record for the marshes in the north of the county.

Though the breeding of Pochard (*Aythya ferina*) is not so unusual in Kent there are few records for the north of the county, and we add, therefore, that E.H.G. saw three pairs with young in 1947.

E. H. GILLHAM AND R. C. HOLMES.

GANNETS INLAND.

A recent search through the local reports covering England, Scotland and Wales, up to and including 1946, revealed 135 records of Gannets (*Sula bassana*) occurring inland. The search of the literature was not exhaustive and some sources, thought possibly biased in favour of out of season records, were deliberately excluded.

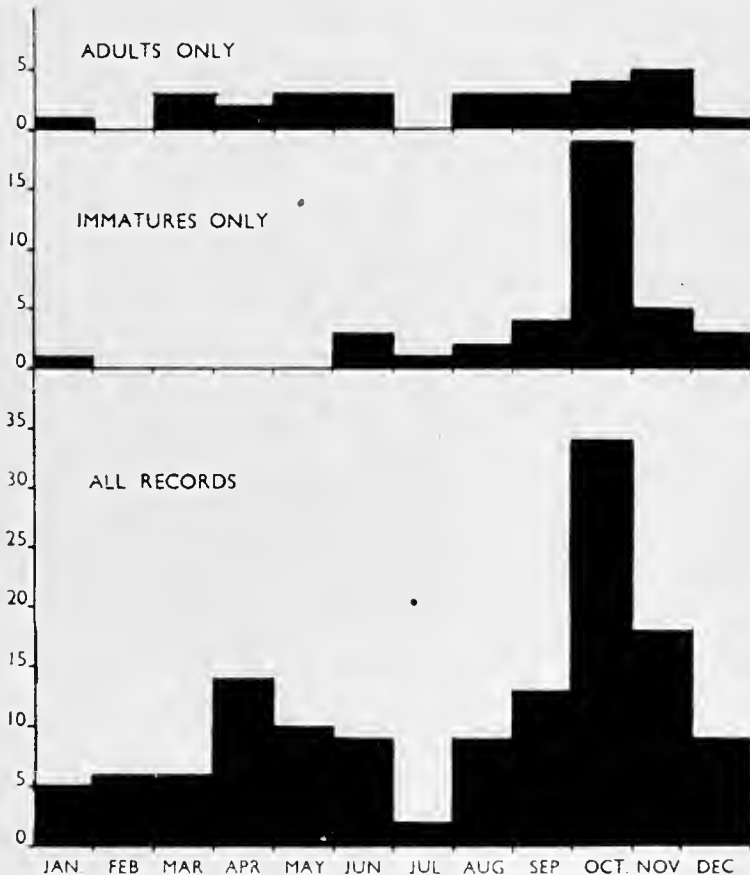


Diagram to illustrate number of Gannets recorded inland for each month of the year.

The seasonal distribution of these records, shown in the histograms, with its minor spring peak in April and accentuated

peak in October is much as anticipated, though confirmation was desirable. The number of birds specifically recognized either as adult or immature is unfortunately too small to make generalizations (only 28 adults and 38 immatures), nor is it possible to differentiate between records of first, second or third year birds. But it is clear that the autumn peak is predominantly comprised of immature birds; birds of the year are unlikely to be well on the wing until September. Although it is not conclusively shown that the spring peak is attributable to adult or immature birds, the former are the more probable because adult birds are less likely to be mentioned as such in the records than are immatures. JOHN GIBB.

SOOTY SHEARWATER OFF SUFFOLK AND NORFOLK COASTS.

ON August 31st, 1947, a shearwater which was very dark brown all over, except for a somewhat lighter wing lining, and was later identified by Mr. W. B. Alexander from field notes and sketches as a Sooty Shearwater (*Puffinus griseus*), was seen heading due north parallel to the coast between Lowestoft and Great Yarmouth. It was about a quarter of a mile offshore (I was on a pleasure steamer at the time) and was seen on both sides of the county boundary.

This observation has been submitted to the Lowestoft Field Club and the Norfolk Naturalists' Trust, and appears to be the first record of this species for Suffolk and only the second for Norfolk (see *A History of the Birds of Norfolk*, Rivière, 1930, p. 176).

R. A. RICHARDSON.

CHIFFCHAFF IN SURREY IN FEBRUARY.—Mr. E. M. Nicholson informs us that he and Sir Cyril Hurcomb observed a Chiffchaff (*Phylloscopus collybita*) on February 1st, 1948, in a wet excavated patch on the site of the new reservoir at Walton-on-Thames, a spot which looked highly suitable for supporting such a bird through a mild winter such as that of 1947-8. There was no reason to suppose that the bird was not of the typical race.

EARLY CHIFFCHAFF IN KENT.—Mr. J. C. Felton informs us that he saw, and heard the song of, a Chiffchaff (*Phylloscopus collybita*) at Tonbridge, Kent, on March 8th, 1948.

FLIGHT SPEED OF LITTLE EGRET.—Mr. J. P. Paige informs us that when he was travelling in an armoured car on a road running parallel with the western shore of the Sea of Galilee a Little Egret (*Egretta g. garzetta*) rose from the shore and flew parallel with the road for some distance. It was a hot windless day and the bird's speed was between 20 and 25 miles per hour.

BLACK-THROATED DIVER IN STAFFORDSHIRE.—Mr. Arnold Hewitt sends us particulars of a Black-throated Diver (*Colymbus a. arcticus*) seen by himself on Gailey Pools, South Staffordshire, on March 2nd, 1948, and again with Mr. B. Bryan on March 4th. The bird was evidently well advanced in the assumption of breeding

plumage and was clearly identified. T. Smith's *Birds of Staffordshire* quotes three previous records for the county.

WHIMBREL IN WINTER IN JERSEY.—Mr. W. R. Philipson informs us that he saw and heard two Whimbrel (*Numenius ph. phaeopus*) in Little Portelet Bay, Gorey, Jersey, on February 9th, 1948.

LARGE PASSAGE OF BLACK TERNS IN MAY.—We have received reports from a number of readers indicating an unusually large passage of Black Terns (*Chlidonias n. niger*) in May, in some places evidently on a scale equal to or exceeding that of May, 1946 (*antea*, Vol. xl, p. 24). We should be glad to receive reports on the subject as soon as possible from any readers who have not sent them to us already.

SPOTTED CRAKE IN WARWICKSHIRE.—Mr. R. W. M. Lee has sent us full details of a Spotted Crake (*Porzana porzana*) which he was able to observe clearly for about 10 minutes at close range at Baginton Sewage Farm, Coventry, on September 6th, 1947. According to published reports this appears to be the third record of this species in the county during the present century.

QUAIL WINTERING IN SOUTH LANCASHIRE.—Mr. T. Edmondson sends us particulars of a Quail (*Coturnix c. coturnix*) which was flushed by Mr. F. H. Horrocks in a field of stubble at Leigh, S. Lancs., on December 14th, 1947, and was seen again by Mr. Horrocks and himself on the afternoon of the same day, when a good view was obtained. It was seen again by Mr. Horrocks on January 24th and 31st, 1948.

REVIEWS.

Lakeland Natural History. Compiled by Ernest Blezard. (Carlisle Natural History Society, 1946).

This volume, published late in 1946 as Vol. vii of the *Transactions of the Carlisle Natural History Society*, is uniform with and forms an appropriate companion to the previous volume, *The Birds of Lakeland*. Though it includes articles on various natural history topics, including Geology and Botany, Ornithology predominates. The opening essay by Fl.-Lt. R. A. Carr Lewty, entitled "Aviation and Ornithology in Lakeland" is a most interesting and suggestive one. It demonstrates very effectively the unique contribution which aerial observation, in spite of some inevitable difficulties and drawbacks, can make to the study of birds, with a surprisingly varied and valuable assortment of actual data obtained by the author and fellow pilots in the area during the war. These show how wide are the possibilities opened up by ornithological investigation from the air and how the method may be applied to the solution of problems which are impossible, or much more difficult, to tackle on the ground. Outside the obvious field of research on height and speeds of flying birds, various other lines of investigation are indicated. Thus the feeding ranges of the larger colonial birds, such as Rooks and Herons, can be studied far more effectively from the air than otherwise and unsuspected facts may be revealed. The birds from a rookery surrounded on all sides by suitable feeding grounds appeared to forage haphazardly in all directions on calm or nearly calm days. "On days, however, on which the wind was appreciable, of a speed of five miles an hour or stronger, it was found

that the majority of Rooks were foraging into wind and returning to the rookery with the wind." Observations over the Solway have revealed the remarkable way in which flocks of shore-birds anticipate the uncovering of particular areas by the tide, starting while these are still submerged and travelling sometimes several miles on an unerring course to arrive punctually as the ground becomes exposed. Again it is shown how much more accurate and comprehensive a picture of the numbers and movements of flocks of wild-fowl on a large area such as an estuary can be obtained from the air than by an observer on the ground. Interesting results have also been obtained in the tracing of migration routes.

Miss M. Garnett gives an account of the winter bird-life of Windermere based on long experience. T. L. Johnston gives an interesting review of the increase and spread of the Grey Lag Goose as a passage migrant and winter visitor in Lakeland which has taken place since the beginning of the century, and the Editor contributes an account of the Lakeland Pennines and their birds. This last includes many good original observations, including several items which we have noted for a future edition of *The Handbook*, including the frequent occurrence of Dor-beetles (*Geotrupes*) in pellets of the Raven, the regular use of old Ravens' nests as roosting places by Peregrines and a case of a male Merlin amongst the prey of a Tawny Owl. A final chapter, also by the Editor, summarizes notes and records on local ornithology received since the publication of *The Birds of Lakeland* in December, 1943. Reference is made to the spread of the Little Owl and Green Woodpecker and to the more adequate information now available about the birds of the Kent estuary and Arnside district. In the case of a record of a Golden Eagle in Westmorland it seems a pity to have given no evidence, in view of the much greater frequency of occurrence of White-tailed Eagles as migrants in England.

Special maps illustrating the articles by Mr. Carr Lewty and Miss Garnett are included in a pocket at the end of the volume.

Bird Haunts in Northern Britain. By G. K. Yeates. (Faber and Faber, Ltd., 1948). 25s. net.

Mr. Yeates has duly followed up his *Bird Haunts in Southern Britain* with his promised sequel on the birds of the North. We liked his earlier volume, but we enjoyed this one even more, partly no doubt, though not entirely, because we share his susceptibility to the fascinations of the North. There are chapters describing trips to the Border country after Short-eared Owls, to Argyllshire after Black-throated Divers, to the Central Highlands, Speyside and the wilds of Sutherland and Caithness for Dotterel, Greenshank and other species. But about half the book is devoted, deservedly, to Shetland, that bare and wind-swept yet delectable country, with its Great and Arctic Skuas, Whimbrel and Phalaropes, and its unsurpassed coastal scenery and teeming sea-bird colonies—though, to be sure, Mr. Yeates is not much concerned with the cliff birds on this occasion. Praise of Mr. Yeates's photographs becomes almost monotonous in a succession of reviews and it seems hardly necessary nowadays to say more than that they are Mr. Yeates's. As regards the text too we could not but reflect as we read it how well our author does this sort of thing. He has a vivid and lively style, and the combination of text and photographs results once again in a "popular" bird book of the very best type, not laying any claim to advance ornithological knowledge materially—why should it?—but providing most pleasant light fare for any reader to whom the subject of birds and wild country appeals, be his own knowledge large or little. To say this is not to overlook a few minor lapses, such as a repetition of the erroneous notion that the Fulmar squirts oil through its nostrils (it does so from the open mouth) or the laughable one on p. 81 in which, in a reference to the Hooded Crow, Mr. Yeates seems to show himself less at home with the Old Testament than with birds, but these need not be taken very seriously.

In addition to the large number of admirable photographs in black and white there are two in colour from Kodachromes by the author and two colour plates from paintings by G. E. Lodge.

Haunts of British Divers. By Niall Rankin. (Collins, 1947). 12s. 6d. net.

This is one of the recently issued bird books which depend mainly on their photographs, and it may well do so, for Col. Rankin has produced a superlative series of pictures of Great Crested Grebes and the two British divers at the nest, supported by others of their haunts and in the case of the divers some of their bird neighbours also, in all no less than 82 plates beautifully reproduced. The grebe photographs include several of feathers being fed to the chicks. The text, mostly describing the author's experiences and observations in securing his pictures, is written in a rather light vein and although pleasant enough reading of its kind does not add anything material to knowledge of the habits of the birds. It is perhaps worth pointing out that the photograph of part of the Hermaness gannetries in Shetland (Plate 55) shows the colonies on Humla Stack and Humla Houl and not, as stated, on Clingra Stack and Clingra Houl, on which no Gannets breed.

The coloured frontispiece and pen and ink drawings by Margaret Myddleton are somewhat wooden but not ineffective. The book is well produced on good quality paper and at the current rate of charges for books is very moderately priced.

LOCAL REPORTS.

Ornithological Notes, 1938-1946. By Geoffrey C. S. Ingram and H. Morrey Salmon.

These notes on Glamorganshire and Monmouthshire are re-printed from the Cardiff Naturalists' Society's *Transactions*, though there is nothing in the heading to indicate either their source or the area covered. The notes are strictly faunistic, recording the localities and dates of the more noteworthy occurrences during the period. Records of four Choughs at Caswell Bay, Gower, on August 7th, 1944, and of one most regrettably shot at Aberavon on January 27th, 1945, are the first for Glamorganshire for over 50 years. Others of Blue-headed Wagtail (male, Llanishen Reservoirs, August 24th, 1941), Red-breasted Flycatcher (female, same locality, September 12th, 1943), Red-crested Pochard (two males, same locality, in December, 1940 and one at Roath Park Lake, Cardiff, in January and February, 1941), Northern Golden Plover (three shot at Margam, March 25th, 1940) and Dotterel (six on a hill above Clydach Vale, May 3rd, 1942) are new to the county, while one of Ferruginous Duck (male, Lisvane Reservoir, December, 1939) is the first for over 100 years, and two of Stone-Curlew (near Kenfig Pool, August 15th, 1939, and St. Athan, April 27th, 1941) the first since 1885. Single occurrences of Pied Flycatcher and Wryneck are the first county records for autumn. Curlew bred in four new localities between 1939 and 1946 and Willow-Tits were recorded for the first time breeding in the county at Llanishen in April, 1946. A number of other more or less scarce birds are recorded, including Firecrest, Hoopoe, Grey Phalarope and Great Skua. Some of the records quoted above have already appeared in *British Birds* and references might have been given with advantage; in some other cases such references are actually given.

The few records for Monmouthshire are dealt with separately. Willow-Tits are reported from several localities and the first case of breeding (two pairs) was proved in the Soar Valley in 1942. Amongst other records those of Golden Oriole, Firecrest, Hoopoe, Iceland Redshank and Spotted Crake might be mentioned.

Lincolnshire Naturalists' Union: Transactions, Vol. xi, No. 4, Dec., 1947.

Ornithologists in Lincolnshire are either relatively fewer or less well organized than in many parts of England. The present publication includes a section on Ornithology, but it hardly achieves the status of a proper county bird report in the modern sense. It consists for the most part of miscellaneous and rather rambling notes put together from the reports of a few correspondents with little attempt at systematic treatment. Two Dotterel were satisfactorily identified at Bishopsthorpe on April 15th. Five Woodlarks were seen, and

song heard, at Greetwell, near Lincoln. This is stated to be the first county record for many years, but Woodlarks bred regularly in at least one area in the north of the county at least as recently as 1937 and we have little doubt do so still. Earlier but still relatively recent records of breeding appear in *British Birds*, Vol. xvi, p. 47 and xix, p. 129. With reference to Willow-Tits the somewhat cryptic statement is made that "*a pair nested on several occasions (italics ours)* . . . at Langworth, Cranwell and Scothern." The compiler of the report enquires whether both Willow- and Marsh-Tits "share the rather harsh, repeated, chiding call, and is it only the Willow Titmouse which excavates a nest hole?" Both points are said to "need clearing up." Reference to *The Handbook* might prove helpful.

These *Transactions* also include a short paper by J. H. White on the Rook Survey of Lincolnshire, 1944-45.

The London Bird Report for 1946. Edited by E. R. Parrinder.

In this carefully compiled report a spread of the Woodlark in the area (within a radius of 20 miles of St. Paul's) is recorded, and Stonechats showed a welcome increase in Middlesex, where five breeding pairs were observed. Two pairs of Wheatears bred at Blackheath (Kent), the first definite record of nesting in the area since 1930, and Garganey may have bred at Rainham (Essex). An interesting intermittent passage movement of Wrynecks at Limsfield (Surrey) is reported. Two Twites were satisfactorily identified at Barn Elms (Surrey) on October 28th and a Rock-Pipit there on April 11th. A Rough-Legged Buzzard was fully identified at Mill Hill (Middlesex) and an Arctic Skua in the Lea Valley (Herts) on May 28th, in addition to records already published in *British Birds*. A Black Stork seen associating with Herons at Hampton Hill (Middlesex) for several days in September was very tame and is presumed to have been an escape, though no loss of a captive bird has been traced. The reservoirs are responsible as usual for a notable list of the scarcer waders and water birds, including Red-crested Pochard, Red-breasted Merganser, Red-necked Grebe, Bar-tailed Godwit, Turnstone, Whimbrel, Curlew-Sandpiper, Sanderling, Wood-Sandpiper, Grey Plover (several) and Sandwich Tern. Two red-headed Smew were present at Walthamstow on July 16th, a most unusual date, and it is noteworthy that Gadwall were present on the Barn Elms reservoir and the Thames at Hammer-smith almost throughout the year, twelve being noted on April 8th and numbers rising to as many as 20-25 in November and December. There are also records of Golden Oriole, Great Grey Shrike (several), Hoopoe, and Manx Shearwater and several of Common Buzzards.

There is also a note on rookeries and a brief but interesting summary by P. A. D. Hollom of the results of the census of Great Crested Grebes in the London area. In 1946 the number of breeding pairs was approximately the same as in 1931 (64.5 as compared with 68), but the total summer population has increased from about 225 to 356, this being evidently due to the influence of the many gravel-pits, on which, however, the number of non-breeding birds is exceptionally high. A report on Black Redstarts in London gives in somewhat more detail particulars which have already appeared in *British Birds*.

Report on Birds observed in Hertfordshire in 1946. By H. H. S. Hayward. Reprinted from *Trans. Herts Nat. Hist. Soc.*, Vol. xxiii, pp. 6-16).

The Hertfordshire report records a Great Reed-Warbler at the Tring Reservoirs on April 27th. The description, which was submitted to us soon after the occurrence, is not above criticism in certain respects, but seems to leave little doubt of the bird's identity. A Broad-billed Sandpiper at Tring has already been recorded in *British Birds*. A Dartford Warbler was well seen on Berkhamsted Common on November 10th. The remarkable passage movement of waders and other birds which took place at the Tring Reservoirs in May has already been described by Mr. Glegg in this journal (Vol. xl, p. 107) but three Little Gulls seen on May 9th are not mentioned in the communication in question. Few waders were seen in the autumn, but a flock of about

forty Little Terns seen at the Wilstone reservoir on September 26th is remarkable. Other notes include one on a fierce attack by a Magpie on a sitting Wood-Pigeon, which, however, defended its eggs successfully, and a case of Great Crested Grebes attempting to nest on bare mud about two feet from the water's edge at Wilstone. This occurred when the water level was rising and is not a case of the water *receding* from a previously built nest. We note that a record of a Black Redstart in June in the 1944 Report, which was queried by Mr. Fitter in *British Birds*, was in fact probably erroneous.

LETTERS.

CABINET COLOUR CHANGES IN BIRD-SKINS AND THEIR BEARING ON RACIAL SEGREGATION.

To the Editors of BRITISH BIRDS.

SIRS,—In reference to Dr. Harrison's remarks (*antea*, p. 128) on the paper bearing the above title (*antea*, Vol. xl, pp. 322-5), may I place the following further facts on record. During the latter part of 1947 and the early part of the present year, I brought together an extensive series of Robins and as the specimens became dry they were matched and numbered, quite independently and almost identically, by my wife and myself. Ten examples, originally assessed as being exceptionally homogeneous, could not be assessed as such at the present time. In four of them the upper-parts have changed from olive-brown suffused greyish, to brown. In three others in this series, the greyish suffusion of the upper-parts has practically disappeared, whilst in the remaining three specimens no changes of any kind can be detected. In another series of seven birds, the colours appear to be unchanged, but in a series of fifteen skins, changes similar to those noted above are undoubtedly taking place. Again, a number of Rock-Pipits I collected in the Isle of Man in 1946, and which I thought at the time indicated the existence of a perfectly good new race, have now started to match some fifty older specimens with which they had been compared. Robins and pipits have been juggled about by systematists for many years, but how many references can be found to their extreme instability?

It is also relevant to record here that it was recently stated by a certain worker that Manx Long-tailed Tits differed slightly in colour from *Ægithalos caudatus rosaceus* Mathews. This statement was based on six specimens I collected in the Isle of Man in 1947, as compared with a fairly good series of *rosaceus* collected in various parts of the country during the last ten to fifteen years. The supposed distinctions of the Manx birds were known to me, but not having until fairly recently perfectly fresh examples of *rosaceus* for comparison, I deferred publishing a statement on their possible affinities. It is fortunate I did so, for it can now be shown that the Manx birds differ in no way from fresh specimens of *rosaceus*, and that the published remarks concerning them are based on nothing more than unsuspected cabinet changes in the aforementioned series of *rosaceus*. Yet Dr. Harrison states "that the matter of the communication has been subjected to over-emphasis." As an ornithologist keenly interested in systematics I wish I could agree with him, but the above facts speak for themselves. Also, I would like to share Dr. Harrison's belief in the unfailing perspicacity of the editors of *The Handbook*, but the Song-Thrushes in the Yorkshire Museum bear silent witness to the truth that colour changes can, and do, upset the calculations of even the best and most experienced workers. Indeed, in spite of Dr. Harrison's assurances to the contrary there appears to be no great awareness of the existence of such changes and of their real and potential dangers. This is partly confirmed by the paucity of the literature on the subject. In the main it consists of brief and scattered references to particular and obvious instances of colour change. In any case alarm is not vested in obvious differences but in the far more insidious subtleties that precede them. Unless these are fully understood and properly assessed, it is quite impossible for anyone who has paid much attention to the subject in question to place much faith in the many segregates of British birds at present being described.

Thus, I wish to reaffirm that in my view all comparative work, having as its object the discernment, and assessment of fine colour differences, should cease until the whole subject of cabinet colour change has been thoroughly and painstakingly explored. Research on this important ancillary aspect of systematics is being pursued at the Yorkshire Museum, and although the results so far achieved are far from satisfactory, they at least encourage the hope that through the adoption of simple expedients colour changes can be reduced to negligible proportions.

Throughout our enquiries the need for a reliable instrument for pegging colours has been keenly felt, so that we now await with interest the arrival of a particular kind of tintometer which we hope will not only assist our present endeavours, but may enable systematists of the future to escape in some measure from the bondage of verbal descriptions.

In closing, may I add that I cannot avoid the unhappy conclusion that Dr. Harrison's letter does not deal with the facts as they are, but as Dr. Harrison would like them to be. Some day perhaps I shall be able to share at least some of Dr. Harrison's views on this all-important question, but not until the specimens I use merit the faith Dr. Harrison apparently places in his own.

REGINALD WAGSTAFFE.

MOVEMENTS OF BAR-TAILED GODWITS.

To the Editors of BRITISH BIRDS.

SIRS,—Mr. R. A. H. Coombes in his note on the "Status of Bar-tailed Godwit on Morecambe Bay" (*antea*, p. 56) shows that on the open sands of the Bay the autumn migration of this species (*Limosa l. lapponica*) appears to be on a larger scale than the spring. This is so different from the situation on the Kent Estuary at the head of the Bay that it would be interesting to know if regular watchers on other estuaries have noticed a similar preference for the upper reaches in spring and for the coast in autumn and winter.

My note in Vol. xxxix, p. 379 (which referred explicitly to the Kent Estuary and not to Morecambe Bay as a whole) was based on almost daily observation of the estuary, with particular vigilance during the migration period from August to October. Subsequent notes confirm the figures given there. 1947: ten birds on March 30th; between 70 and 80 on May 23rd (also seen by J. C. S. Ellis, who can confirm the scarcity of the species in September); two on August 19th and one on October 10th. 1948: five on February 26th, and up to sixteen regularly till April 15th; fifteen on May 20th. Over the last ten years godwits have always appeared in late February or March and have left again by the end of April. There is usually, but not always, a brief visit from appreciable numbers in May; but in the autumn very few are seen, or none at all.

In a paper on "Inland Occurrences of some Waterfowl and Waders 1924-1936" (Vol. xxxii, p. 74), P. A. D. Hollom writes of the Bar-tailed Godwit that "Spring records considerably exceed those of autumn and refer chiefly to May". This is noteworthy if, as is generally stated, the coastal migration is heavier in autumn. But in "The Migrations of the Bar-tailed Godwit as observed on the South Lancashire Coast" (Vol. xxiii, p. 319), F. W. Holder and R. Wagstaffe state that "The largest flocks we have seen on the west coast have occurred in February and March", and G. E. Hughes Onslow (Vol. xxxix, p. 285) saw his biggest flock at Ayr on March 9th, 1945. Daily watching in other districts might confirm the regularity of a large-scale movement in early spring. However, taking the May occurrences only into account, the preponderance of the spring passage over the autumn is nearly as marked as in the Sanderling near the head of this estuary.

J. A. G. BARNES.

NOTICE TO CONTRIBUTORS.

British Birds accepts papers and notes dealing with original observations on the birds of the British Isles and Western Europe or, where appropriate, on birds of this area as observed in other parts of their range. Review articles on subjects of current ornithological interest will also be considered.

Contributors are asked to observe the following points, attention to which saves the waste of much editorial time on trivial alterations.

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Notes should be drawn up in as nearly as possible the exact form in which they will be printed, with signature in BLOCK CAPITALS, and the writer's address clearly written *on the same sheet*. If more than one note is submitted each should be *on a separate sheet* with signature and address repeated. Though suitable headings and scientific names can be added by the Editor, if necessary, they should be inserted by authors as far as possible. Communications should always be as concise as possible, though reasonable detail can be given where this is important. Notes or records of subsidiary importance may be abbreviated or otherwise modified by the Editor for inclusion in the section of "Short Notes." Maps or graphs must be *neatly* and *boldly* drawn in Indian ink, with due allowance for reduction when necessary.

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REPORT ON THE EFFECT OF THE SEVERE WINTER OF 1946-1947 ON BIRD-LIFE

BY

N. F. TICEHURST AND P. H. T. HARTLEY.

INTRODUCTORY.

IN response to a request for information on the effects of the hard weather of early 1947 on bird-life, 121 reports have been received, 9 from ornithological and natural history societies, and 112 from individual observers; 113 reports came from England and Wales, 5 from Scotland and 3 from Ireland; the reports from Scotland have been sent to the *Scottish Naturalist* for inclusion in the account which is to appear in that journal. The contents and length of the different reports varied greatly, but sufficient information has been received to give a fairly adequate account of the effects of the prolonged severe weather on bird-life in England.

Reports have been published in this magazine on the effect on bird-life of the hard winters of 1916-17 (Vol. xi, pp. 266-271; xii, pp. 26-35), of early 1929 (Vol. xxiii, pp. 154-158) and 1939-40 (Vol. xxxiv, pp. 118-132, 142-155). In 1917 cold weather continued until the end of April. In 1947, though April was a wet and stormy month, temperatures were a little above the average (Hawke and Champion, 1948): but February 1947 was the coldest month since 1895, and in Oxford none had been so cold since records were started in 1815 (Hawke and Champion, *op. cit.*).

Many species of birds were greatly reduced in numbers; the details are given in the classified list. Not the least striking feature of a collation of the reports for the whole country is the lack of any consistency in the proportionate reductions of numbers of groups of allied or ecologically similar species. For example, in the Wirral peninsula Tree-Creepers were scarcely affected and Nuthatches were much reduced, but on the Surrey-Sussex border Tree-Creepers suffered heavily, and Nuthatches not at all. In Kent both species were reduced, in Worcestershire neither. In S.W. Devon and in Cardigan, Blackbirds suffered heavier reduction than Song-Thrushes, but over most of the rest of the country Blackbirds fared far better than the Thrushes did. The diminutions of the stocks of the various species over the country as a whole show few consistent trends. When any generalizations upon this subject are offered, they are advanced with the greatest hesitancy, for 116 reports, unevenly distributed and often more concerned with the occurrence of rarities than with the status of residents, cannot be regarded as an adequate sample.

A few casual references suggest that the short but severe cold spell of early 1945, had a greater effect upon the numbers of many species than might have been expected from its brief duration. It is to be regretted that the effects of this period of hard weather are so little documented. Some notes on the subject were sent

in to *British Birds* but were too fragmentary for profitable comparisons to be made.

THE WINTER WEATHER OF 1946-47.

October, 1946, was a fine and sunny month, and November was mild. December was dry and cold; in the south-east of England temperatures in the week ending December 21st, were 10.1°F below normal. In England there was no snow below 750 feet until December 16th, though there had been snow at sea-level in Wales in the first days of the month. On December 16th, there was snow as far south as Kent and the Sussex coast, and on the 19th, snow spread as far west as St. Eval in Cornwall.

January, 1947, was a month of unsettled weather. There was a short spell of severe cold from January 5th to 7th, with heavy snow falls in the north and some snow over much of England and Wales. Drifts up to 10 feet deep were reported in the Market Harborough area. This cold snap was followed by unusually mild weather, with temperatures up to 57°F locally on January 16th. Then an anticyclone over Brittany declined and pressure became high to the northward. From January 19th to 22nd, temperatures remained below 40°F in many places, and on January 23rd, a very cold N.E. wind heralded the really severe weather. The deviation from the average for the week beginning January 26th was -11.6°F . On the morning of January 30th, a reading of -5°F (37 degrees of frost) was recorded at Writtle in Essex, and on that day a temperature of -6°F occurred at Elmstone in Kent. Snow fell during the last week of the month all over England; on January 30th, there was a fall of 7 inches of snow in the Scilly Isles. On the lee side of the Pennines and in Wales snow falls were lighter than in much of England.

February, 1947, was a month of excessive severity. It was generally the coldest month since February, 1895, the deviation from the average daily mean temperature being -10.2°F in England and Wales, and -8.5°F in Northern Ireland. The lowest temperature recorded was -5°F at Woburn on February 25th. There was no day through the month in which snow did not fall in some part of Britain. At Wrexham in Denbighshire snow fell on 26 days out of the 28. In general the heaviest snow storms were in the first and last thirds of the month. By the morning of the 6th, snow lay to a depth of 44 inches at Forrest-in-Teesdale, and by the 18th, the average depth had increased to 53 inches. The fall of more than a foot of snow in 24 hours was frequently reported. It seems certain that at no time has England been more snow-bound since 1814, the year of the last "Frost Fair" on the Thames.

February, 1947, was the dullest February on record, and duller than any month since December, 1890; sunshine was only 47% of the average and 11% of the possible maximum. Winds from an easterly point which began to blow on January 22nd, continued

without intermission until February 22nd, giving one of the longest spells (if not the longest) of east wind recorded in Britain. Under these conditions of dull skies and east winds it was the low day temperatures rather than the night temperatures which were the most striking feature of the frost. At Greenwich the mean maximum for February was the lowest for any month since before 1841. At the end of the month, and in early March, there were severe silver frosts in the south and south-west of England.

In the first ten days of March, 1947, there was no break in the frost, ice floes in the North Sea contributing to keep temperatures low. On the early morning of March 4th, a temperature of -6°F was recorded at Houghall, Co. Durham. A warm front from north of the Azores swung north-eastward across western Europe. There was a marked temporary thaw in the southern counties of England, with torrential rain in Devon, snow and silver frost in the South Midlands, and the worst snow storm of the season (engendered by the riding of the mild Atlantic air over the cold air below) over much of Wales, central and northern England. From 12 to 18 inches of snow was added to the existing cover, and by the morning of the 6th, the snow cover at Clawdd-newydd in Denbighshire was 5 feet deep. There were drifts 25 feet deep in Radnorshire, and drifts of 16 to 20 feet were by no means uncommon elsewhere in Wales and in midland England.

During the second week of March more depressions passed eastward across Britain from the Atlantic. Some of the associated precipitation was in the form of snow, but the frost was breaking fast, and after the middle of the month heavy rains combined with the melting of great accumulations of snow to cause the worst floods of many years.

(References for this section: Douglas (1947). Hawke and Champion (1948), Meteorological Magazine (1947).)

LIST OF OBSERVERS.

NOTE: For the sake of convenience, this list, and records in a systematic list to follow, are arranged under counties grouped under the Watsonian provinces. All observers who sent in notes are included. No distinction has been made between those who were able to make detailed observations and those, who, for various reasons, could forward only brief notes.

Province I. PENINSULA. *Cornwall*: Cornwall Bird Watching and Preservation Society, per B. H. Ryves, J. A. B. Bulford (Bodmin), J. A. Gibb (Rinsey), P. H. T. Hartley (Saltash). *Devon*: J. Clements (Newton Abbot), W. A. C. Glandfield (Plymouth), B. F. Harry (Kingsbridge), R. W. H. Hind (Tiverton), A. E. Hubbard (Strete), O. D. Hunt (Newton Ferrers), H. G. Hurrell (Wrangaton), F. J. Johnston (Sidmouth). *Somerset*: R. E. Alley and H. J. Boyd (Blagdon), A. V. Cornish (Ashford Reservoir), D. B. Grubb (Winscombe), B. King (Cheddar).

II. CHANNEL. *Wiltshire*: B. W. H. Couldson, Dauntsey's School (Devizes), D. N. Dunn (Salisbury). *Dorset*: K. B. Rooke (Cranborne), J. Voysey, Bryanston School (Blandford), B. K. Whitaker (Wareham &

Maiden Newton). *Hampshire*: C. T. Dalgety (Romsey), J. H. Midgley (Alton), D. A. Taylor (Christchurch), H. E. Woods (Fareham). *Sussex*: R. Cooke (Pett Level), G. des Forges, I. J. Ferguson Lees (Crawley), K. E. Pullen (Brighton), J. Reynolds (Bognor Regis), N. F. Ticehurst (St. Leonards), R. Ware (Frant), A. A. Wright (St. Leonards).

III. THAMES. *Kent*: London Natural History Society, per H. F. Greenfield, C. B. Ashby and G. Beven (Dungeness), H. E. Littledale (Charing), D. A. C. Long (Denton), G. E. Took (St. Margarets-at-Cliffe), H. R. Tutt (Ashford). *Surrey*: London Natural History Society, per H. F. Greenfield, K. R. Chandler (Limpsfield), D. Goodwin (Virginia Water), F. M. Gurteen (Horley), A. E. Hubbard (Beddington), K. P. Keywood (Claygate), H. E. Pounds (Farleigh), L. G. Weller (Ewhurst). *Essex*: London Natural History Society, per W. G. Teagle, K. D. G. Mitchell (Epping and Walthamstow), R. Sparrow (Halstead), H. R. Tutt, A. C. Wheeler (Chingford). *Hertfordshire*: London Natural History Society, per W. G. Teagle, P. S. Burns (Bishop's Stortford), W. E. Glegg (Tring), H. H. S. Hayward (Tring), E. and A. Reavley Jenkins (Hitchin), C. Waddington (Welwyn Garden City). *Middlesex*: London Natural History Society, per C. B. Ashby. *Berkshire*: Reading Ornithological Club, per C. C. Balch, G. Brown (Newbury), R. T. Foster (Newbury), D. Lack, H. N. Southern and E. Sylva (Wytham). *Oxfordshire*: John Buxton, A. Darlington (Sibford Ferris), R. W. H. Hind (Hook Norton). *Buckinghamshire*: London Natural History Society, per W. G. Teagle, H. J. Evans (Chess and Misbourne valleys).

IV. OUSE. *Suffolk*: (Nil). *Norfolk*: B. B. Rivière (Salhouse), M. J. Seago (Postwick). *Cambridgeshire*: Cambridge Bird Club, per P. E. Parry, R. E. and W. M. Moreau (Madingley). *Huntingdonshire*: C. F. Tebbutt (St. Neots). *Northamptonshire*: R. E. Burton (Kettering), K. A. Hardwick (Sywell Reservoir).

V. SEVERN. *Gloucestershire*: H. H. Davis, A. C. Leach, R. H. Poulding, and W. R. Taylor (Bristol), A. G. Tayler (Bourton-on-the-Water). *Herefordshire*: R. H. Baillie (Kington), A. W. Bolt (Hereford). *Worcestershire*: F. Fincher (Bromsgrove), A. J. Harthan (Evesham). *Warwickshire*: H. Kenrick, G. W. Rayner and R. C. Muir (Birmingham). *Staffordshire*: (Nil). *Shropshire*: J. M. Howard (Market Drayton). J. H. Owen (Montgomery border).

VI. S. WALES. *Glamorgan*: (Nil). *Monmouth*: (Nil). *Brecon*: D. B. Grubb (Irfon Valley). *Radnor*: (Nil). *Montgomery*: Montgomeryshire Field Society, per V. J. Macnair, J. H. Owen (Llanymynech). *Carmarthen*: H. J. Evans (Brechfa & Pencader), J. F. Thomas (Laugharne). *Pembroke*: W. Condry (Dale Fort), T. A. W. Davis (Dale Roads). *Cardigan*: W. Condry.

VII. N. WALES. *Merioneth*: (Nil). *Denbigh*: (Nil). *Flint*: J. Caldwell (Nannirch). *Caernarvon*: (Nil). *Anglesey*: (Nil).

VIII. TRENT. *Lincolnshire*: J. S. Reeve (Lincoln), P. P. L. Stephenson (Grantham). *Leicestershire* and *Rutland*: Leicestershire and Rutland Ornithological Society, per F. A. Bak. *Nottinghamshire*: J. Staton and R. J. Raines. *Derbyshire*: W. K. Marshall (Kirk Langley).

IX. MERSEY. *Cheshire*: A. W. Boyd (Northwich), H. A. Hall (Stalybridge), A. F. Morton (Leasowe). *Lancashire*: A. F. Airey (St. Annes on Sea), L. A. Cowcill (Ulverston), M. D. Leaver (Burnley), C. Oakes, K. G. Spencer (Burnley).

X. HUMBER. *Yorkshire*: R. Chislett, K. Brown (Leeds), F. Dean (Hebden Bridge), G. Edwards (Spurn and Halifax), J. C. S. Ellis (Huddersfield), K. Ilderton (Harrogate), T. Smith (Keighley), A. N. Sykes (Huddersfield).

XI. TYNE. *Durham and Northumberland*: Natural History Society of Northumberland, Durham and Newcastle-upon-Tyne, per G. W. Temperley.

XII. LAKELAND. *Westmorland*: J. A. G. Barnes (Arnside), R. W. Robson (Warcop). *Cumberland*: (Nil). *Isle of Man*: (Nil).

IRELAND. R. F. Ruttledge. *Antrim*: A. Bennington. *Dublin*: F. J. O'Rourke. *Mayo*: W. Ruttledge.

GENERAL EFFECTS UPON BIRDS. BIRDS FOUND DEAD.

Some specimens of most of the winter residents of Britain were found dead. Great numbers of dead Starlings, Mistle-Thrushes, Fieldfares, Song-Thrushes and Redwings were found, the records being most numerous from the southern and western counties. Many dead Blackbirds were also reported, but not in such great numbers as the other Turdidæ.

More than a score of Green Woodpeckers were found dead, and some two dozen corpses of each of the Barn-Owl, Tawny Owl and Little Owl were found.

The only area where large numbers of Wood-Pigeons were found dead was the Welsh border. Large casualties were reported here in the winter of 1939-40. The Scilly Islands were described as "littered" with the bodies of Lapwings, and considerable numbers were picked up in Cornwall and west Pembrokeshire.

In west Wales, some Curlew were found along the tide line and around spring-heads.

At some reservoirs, great numbers of Coots were found—130 at Blagdon, and several hundred at Tring Reservoirs.

ICING OF WINGS AND FEET.

There were relatively few reports of icing of plumage or feet, a cause of mortality frequently recorded in 1939-40. This is attributable to the lack of extensive glazed frosts in 1947. In the Eden valley in Westmorland several Curlew were found iced up; in Derbyshire a hen Pheasant was found frozen to a branch, and in Sussex many birds lost tail or wing feathers in breaking free after a glazed frost. There were several records of Coots trapped in the ice, one of a Black-headed Gull, and one of two Herons; a more unusual victim of freezing-in was a Robin found trapped in a bird-bath in Huddersfield. In Cheshire a dying Mute Swan was found with its feet badly cut about by ice.

UNUSUAL FEEDING HABITS.

There were many reports of unusual shifts of birds in search of food. Visitors to bird tables included Magpie, Skylark, Rock-Pipit, Grey Wagtail, Long-tailed Tit, Fieldfare and Black-headed Gulls. In Wharfedale Red Grouse came down into a garden to feed, and there were records of Black-headed and Common Gulls feeding in the streets of Bournemouth, and Black-headed Gulls in "quiet streets" in Camberwell. Many species of passerine birds were recorded feeding on tidal mud and among growing seaweed (cf. Report for 1939-40). Redwings and Fieldfares fed in exposed mud banks beside the Thames. There were many records of Barn-Owls hunting in broad daylight.

Magpies, Chaffinches, Bramblings, Green Woodpeckers, Wood-Pigeons and Moorhens were seen feeding in poultry runs, and in Cambridgeshire and Derbyshire there were records of Little Owls

attending thrashings, to catch mice right in among the working men. Attacks of Carrion Crows on sheep are in no way remarkable, but at Bourton-on-the-Water in Gloucestershire there were a number of astonishing attacks by Magpies on two year old cattle. Holes "as large as saucers" were pecked in the backs of cattle, until the intestines were exposed. Two beasts were so seriously injured that they had to be destroyed, and at one farm the backs of the cattle were protected with sacking. In Leicestershire and Rutland, Carrion Crows, Rooks and Jackdaws attacked corn-stacks, and in Berkshire, Jackdaws tore holes in a wheat-stack, and pulled out many heads. The dropped heads were pecked over by Hedge-Sparrows, which gleaned the Jackdaws' leaving. Near Guildford Rooks ate swedes growing in the fields, and two Blackbirds and a Song-Thrush ate chopped mangolds in the cattle troughs. At Little Eversden, in Cambridgeshire, and at two places in Kent, Green Woodpeckers attacked beehives.

Black-headed Gulls harried Starlings, Fieldfares, Snipe and Dunlin to make them drop food, and were themselves chased by Common Gulls. Great Tits picked clean the body of a Blackbird, and a Great Tit was seen to kill and eat a Robin. A Mistle-Thrush was seen feeding from a dead Fieldfare at Beddington Sewage Farm, and at Pett Level two Robins were seen to peck at the body of a dead Guillemot.

WEATHER MOVEMENTS.

The beginning of the period of intense cold was marked by a large scale movement of birds in a westerly direction through the counties of the southern coast. This movement was reported from Sussex, Hampshire, Dorset, Devon and Cornwall. On January 24th, Redwings were seen moving west along the Sussex coast, and on the 25th, Redwings were flying S.W. over Saltash in east Cornwall. On January 26th, Fieldfares were seen moving west in Sussex. Movements of these two species, with Song-Thrushes and Mistle-Thrushes reached a peak on January 29th, when Fieldfares were passing over Bournemouth at the rate of 800 an hour, and continued until February 5th. A few Fieldfares were still moving westward on February 6th. In the first days of the frost large numbers of Starlings, many Song-Thrushes and Redwings and flocks of Skylarks passed westward along the Cornish coast at Rinsey Head.

Large numbers of Starlings were seen passing west over Brighton on January 28th and 29th, and through Devon on January 29th and 30th. Skylarks were moving westward along the Sussex coast between January 26th and February 5th, the great movements being on January 28th and 29th. In east Dorset there were large westerly movements of Skylarks between January 29th and February 9th; on the latter date there were westerly movements on a broad front across the Avon valley in Hampshire. On February 1st there was a steady movement of

Skylarks W. and N.W. over Newton Ferrers, in south Devon. Meadow-Pipits began to move west on the Sussex coast on January 24th: many went past on the 26th, when Pied Wagtails were also seen on the move to the west, and passage continued in Sussex until January 29th. There were westerly movements of Meadow-Pipits and Pied Wagtails over Bournemouth on January 29th.

Records of Lapwings on the move were few, though thousands migrated to Scilly. There were departures to S.W. and W.S.W. from west Hampshire and east Dorset at the end of January, and on the 26th some had been seen flying south down the Cuckmere valley. A flock of about 60 Golden Plover passed westward over Eastbourne on February 6th, and on several days at the start of the cold spell Golden Plover were seen flying S.W. over Clifton, Bristol.

On February 4th Skylarks began to move southward past the Spurn and on the 5th they were passing at the rate of 1,500 per hour all day "and even into last minutes of dusk". On February 6th there were "only a few dozen" Skylarks passing. On February 5th several hundred Starlings also went south past the Spurn.

In the first half of February the Sussex coasts were the scene of considerable easterly movements. Skylarks began to move eastward on February 1st, and continued to do so until the 10th, the larger movements being between February 5th and 9th. A few Fieldfares were also seen flying east on February 1st: numbers were seen going east over Brighton between the 5th and 9th, and on the 9th thousands were recorded passing eastward over Pett Level and Rye. February 9th also saw easterly movements of Starlings, Meadow-Pipits, Mistle-Thrushes, Redwings in thousands and Lapwings. On the same day Lapwings were recorded flying "down the Thames valley" (that is eastward) in the Reading area.

On the Sussex coast in general there were westward movements of Skylarks and Redwings between February 13th and March 6th, but on February 23rd "a few flocks" of Skylarks, Fieldfares and Mistle-Thrushes were seen flying eastward over Pett Level.

On February 16th many flocks of Starlings were seen flying south by east over Kegworth in Leicestershire. On February 21st "hundreds of Skylarks came in from the north" at Bude during a snow-storm.

During February, 1947, in Pembrokeshire, it was observed that birds travelling down the coast of Wales altered the direction of their flight at Milford Haven, changing course from S.W. to S.E., often resting for a while before setting off in the new direction. The birds were "mainly Larks and Chaffinches. Also numerous were: Meadow-Pipits, Starlings, Redwings, Blackbirds, Song-Thrushes, Fieldfares, in that order".

It appears that there was relatively little movement into Ireland, but, in addition to thousands of Lapwings, Fieldfares, Redwings, Snipe and Woodcock invaded the Scilly Isles.

CLASSIFIED LIST OF SPECIES AFFECTED.

It has already been mentioned that there was much variation in the reduction of the stocks of many species in different parts of the country, and that no consistent differences could be discovered between one area and another. This variation in the fortunes of many species was also found within the boundaries of single counties. This was illustrated in the *Ornithological Record for Derbyshire*, 1947, in which the varied reports of observers were shown in tabular form (p. 3). Records for three species are quoted from that table:—

	Scarce or very scarce	Numbers decreased	Numbers maintained	Numbers increased
Pied Wagtail ...	4	—	3	1
Song-Thrush ...	1	7	3	—
Blackbird ...	1	1	6	1

In the presence of so much known variation, and in the absence of an adequate sampling of the whole country and in view of the great differences between the interests of the observers, the classified list of species affected has been considerably abbreviated in comparison with previous reports, as it is felt that many detailed observations may be of purely local application, and that no good purpose is served by giving them the emphasis of publication.

Table I shows the number of records of the status of species classified under the headings of "exterminated", "heavy reduction", "slight reduction", "no change", and "increase".

TABLE.

	Exter- minated.	Heavy Reduction.	Slight Reduction.	No Change.	Increase.
Starling (<i>Sturnus v. vulgaris</i>) ...	-	6	5	4	-
Greenfinch (<i>Chloris c. chloris</i>) ...	-	4	2	10	1
Goldfinch (<i>Carduelis c. britannica</i>)	1	4	8	5	-
Linnet (<i>Carduelis c. cannabina</i>) ...	-	3	4	3	-
Bullfinch (<i>Pyrrhula p. nesa</i>) ...	1	5	10	5	-
Chaffinch (<i>Fringilla cœlebs gengleri</i>)	-	-	5	11	4
Yellowhammer (<i>Emberiza</i> <i>c. citrinella</i>)	-	2	5	8	1
Woodlark (<i>Lullula a. arborea</i>) ...	2	1	1	4	-
Skylark (<i>Alauda a. arvensis</i>) ...	-	2	6	4	-
Meadow-Pipit (<i>Anthus pratensis</i>) ...	-	3	-	5	-
Grey Wagtail (<i>Motacilla c. cinerea</i>)	-	2	4	3	-

	Exter- minated.	Heavy Reduction.	Slight Reduction.	No Change.	Increase.
Pied Wagtail (<i>Motacilla alba</i> <i>yarrellii</i>)	1	9	4	5	1
Tree-Creeper (<i>Certhia familiaris</i> <i>britannica</i>)	6	12	17	9	-
Nuthatch (<i>Sitta europæa affinis</i>) ...	1	5	3	7	-
Great Tit (<i>Parus major newtoni</i>) ...	-	3	9	13	-
Blue Tit (<i>Parus cœruleus obscurus</i>)	-	2	13	13	-
Coal-Tit (<i>Parus ater britannicus</i>) ...	2	6	12	4	-
Marsh-Tit (<i>Parus palustris dresseri</i>)	1	4	9	3	-
Long-tailed Tit (<i>Ægithalos</i> <i>caudatus rosaceus</i>)	18	30	8	9	-
Bearded Tit (<i>Panurus b. biarmicus</i>)	1	-	-	-	-
Goldcrest (<i>Regulus r. anglorum</i>) ...	19	12	5	3	-
Dartford Warbler (<i>Sylvia undata</i> <i>dartfordiensis</i>)	3	1	-	-	-
Fieldfare (<i>Turdus pilaris</i>)	(1)	(4)	(1)	-	-
Mistle-Thrush (<i>Turdus</i> <i>v. viscivorus</i>)	2	20	11	4	-
Song-Thrush (<i>Turdus e. ericetorum</i>)	4	30	20	3	-
Redwing (<i>Turdus m. musicus</i>) ...	(1)	(3)	(1)	-	-
Blackbird (<i>Turdus m. merula</i>) ...	3	4	10	19	1
Stonechat (<i>Saxicola torquata</i> <i>hibernans</i>)	7	4	1	-	-
Robin (<i>Erithacus rubecula</i> <i>melophilus</i>)	-	7	11	9	-
Hedge-Sparrow (<i>Prunella</i> <i>modularis occidentalis</i>)	-	5	4	6	1
Wren (<i>Troglodytes t. troglodytes</i>)	5	29	11	4	-
Green Woodpecker (<i>Picus viridis</i> <i>pluvius</i>)	7	24	9	2	-
Great Spotted Woodpecker (<i>Dryobates major anglicus</i>)	-	8	8	7	-
Lesser Spotted Woodpecker (<i>Dryobates minor comminutus</i>)	1	1	4	3	1
Kingfisher (<i>Alcedo atthis ispida</i>) ...	3	11	4	1	-
Little Owl (<i>Athene noctua vidalii</i>) ...	1	6	3	1	-
Tawny Owl (<i>Strix aluco sylvatica</i>)	-	3	5	2	-
Barn-Owl (<i>Tyto a. alba</i>)	1	4	3	4	-
Wood-Pigeon (<i>Columba</i> <i>p. palumbus</i>)	-	1	3	7	-
Lapwing (<i>Vanellus vanellus</i>) ...	-	14	7	8	1
Moorhen (<i>Gallinula c. chloropus</i>)	2	6	3	4	-
Coot (<i>Fulica a. atra</i>)	1	4	3	2	-

CORVIDÆ. The Crow tribe suffered very little.

STURNIDÆ. Starlings suffered heavy casualties, and there was some reduction in the breeding population. In west Cornwall, the mortality of Starlings was described as "heavy, but much less than in 1945".

FRINGILLIDÆ. There were few reports of the Hawfinch (*Coccothraustes c. coccothraustes*). Greenfinches and Linnets were reduced in some areas: the latter species is reported to have suffered in areas in Leicestershire and Rutland where the gorse was killed by frost (cf. Report for 1939-40). Goldfinches suffered a little more heavily, the largest decreases being reported in west Pembrokeshire, the Shropshire-Montgomery border, and in Flint. Chaffinches survived well through most of the country.

ALAUDIDÆ. Woodlarks are reported as "wiped out" at Winscombe in Somerset, and in the Irfon valley in Breconshire, and to have decreased (from six or seven pairs to one pair) at Bourton-on-the-Water in Gloucestershire. In Cornwall the Woodlark appears to have suffered but little, and at Mildenhall in Suffolk it is reported that there is no decrease in numbers. Skylarks are reported as much decreased in the Huddersfield district of Yorkshire, in S.E. Sussex and around Kettering, Northamptonshire.

MOTACILLIDÆ. The Pied Wagtail suffered considerable decrease in many areas. In the Chess and Misbourne valleys in Buckinghamshire, Pied Wagtails were present in normal numbers, but Grey Wagtails showed a large decrease.

CERTHIDÆ. As in 1940, Tree-Creepers suffered severely in many districts, but not everywhere: in Wytham Woods, Berkshire, it was, by the end of the hard weather, one of the most numerous birds. It seems that the species suffered less than in 1940, and much less than in 1917.

SITTIDÆ. Nuthatches suffered more heavily than in 1940.

PARIDÆ. Of the titmice of the genus *Parus*, the Coal-Tit seems to have suffered a little more heavily than the other species. Great and Blue Tits left Wytham Woods at the coming of the snow, and returned in some numbers after the thaw. Marsh-Tits remained in the wood, and endured the hard weather well until the last snowfall, when there seems to have been considerable mortality.

The Long-tailed Tit suffered severely in many districts, but apparently not quite so generally as in 1940. Stocks were reported as normal or but little reduced in areas in Surrey, Essex, Hertfordshire, Cambridgeshire (3 reports), north Oxfordshire, around Harrogate in Yorkshire and in Lancashire. In Ireland, Long-tailed Tits suffered severely in 1945, and are now reported to be everywhere rare.

Bearded Titmice were practically exterminated in Norfolk. One male was seen at Hickling during the summer of 1947. On the

other hand observations in Suffolk in 1948 show that the species must have survived better there than on the Broads.

REGULIDÆ. The Goldcrest suffered everywhere severely. Only in three localities in the Home Counties, and in the Wirral Peninsula were stocks reported as not at all, or only slightly reduced.

SYLVIIDÆ. Only four reports of the Dartford Warbler were received. In the Sussex Downs and the Wiltshire Downs it is reported as exterminated, and in west Hampshire and east Dorset the species is much reduced. It should be noted that as a result of previous severe winters combined with military activities on the heaths, especially in Surrey, the species was already at a low ebb.

TURDIDÆ. The report for the winter of 1939-40 says "of the two migrant thrushes, some Fieldfares were found dead, and they came a good deal to gardens, but they probably did not suffer any great damage. The Redwing on the other hand suffered severely, and many were found dead". This forms an excellent summary of the fates of the two migrant thrushes in the hard weather of 1947. The Mistle-Thrush, on the other hand, suffered much more severely than in 1939-40: the reduction was general, and in the autumn of 1947, rowan-trees laden with berries in October bore witness to the small population of Mistle-Thrushes. Song-Thrushes suffered even more severely, probably as heavily as in 1917. In west Devon, the Song-Thrushes maintained themselves on hibernating snails found in crannies in the stone-faced banks: in quiet lanes on the west side of Dartmoor, the broken shells of *Cepœa nemoralis* and *Cepœa hortensis* made trickles of colour along each side of the roadway. Farther west, around Rinsey in Cornwall, *Helix aspersa* was eaten in large numbers.

Some dead Blackbirds were found, but, as seems to be usually the case, this species suffered less than the other members of the genus. Mention has already been made of two exceptions to this generalization in S.W. Devonshire and in Cardigan, where Blackbirds were more reduced than Song-Thrushes.

The Stonechat seems to have suffered as severely as any species. Of 12 reports of status, no fewer than 7 refer to extermination, and 4 more to heavy reductions. A number of hard winters—1938-39, 1939-40 and (in Ireland at least) 1945—seemed to have made considerable reductions in the population of this species, which was then further reduced in 1946-47.

The Robin was reported as much decreased in some districts, but nowhere exterminated. Lack (1948) has shown that woodland Robins are less capable of enduring hard weather than garden Robins—"extensive woods on the 1,000-acre Wytham estate held no Robins at all at the end of the hard weather, except for six individuals which persisted . . . near a cottage where food was put out for poultry and for Robins, and for two other individuals which . . . persisted near a haystack". In the spring of 1947 two parts of these woods held 42 and 36 singing males, instead

of two birds. It was unknown how many of these birds were true migrants and how many had performed short-distance weather movements. A breeding-season census of such a species cannot, therefore, give figures on mortality resulting from hard weather.

PRUNELLIDÆ. Hedge-Sparrows were not much affected, and in Derbyshire were considered to have "withstood the winter as well as any bird".

TROGLODYTIDÆ. Wrens suffered heavily and generally. Only in the area between London and south Cambridgeshire were there reports of no decrease.

ALCEDINIDÆ. The Kingfisher was generally reported to have suffered severely. Only in Montgomeryshire, where the fast streams did not freeze, did the species come through fairly well. This species also suffered severely in the frosts of 1939-40.

PICIDÆ. As in 1917 and in 1939-40, Green Woodpeckers were reduced in numbers much more than the two Spotted Woodpeckers. Reports that the species had been wiped out came from eight counties. In the earlier days of the frost in Oxfordshire, Green Woodpeckers burrowed through several inches of snow to get at ant's nests. This ability to locate ant's nests through the snow was also recorded in Worcestershire. In Finland the Black Woodpecker (*Dryocopus martius*) regularly burrows through great depths of snow in order to feed on ants during the winter months (Pynnönen, 1939).

STRIGIDÆ. Little, Tawny and Barn-Owls all suffered considerable reductions. Many bodies and a number of moribund birds were found, and a Barn-Owl was found so reduced that it would take dead House-Sparrows (*Passer d. domesticus*) from the hand. Owls seem to have been much harder hit than in 1939-40, and very much more affected than in 1917. It is believed that the heavy mortality of owls is to be attributed to the long persistence of snow cover.

FALCONIDÆ. A few dead Kestrels (*Falco t. tinnunculus*) and Sparrow-Hawks (*Accipiter n. nisus*) were picked up, but, as in 1917 and 1939-40, hawks were scarcely affected by the hard weather.

ARDEIDÆ. The Heron (*Ardea c. cinerea*) population was reduced to the lowest level recorded since records of numbers began in 1928. The Heron Index for 1947 was 54 (Alexander, 1948), that is, the breeding population was calculated to be 54% of the mean breeding populations of the five "normal" years 1928 and 1936-39. Herons were "very severely" reduced in 1939-40, but in 1917 their numbers were, on the whole, well maintained.

PHALACROCORACIDÆ. It is suggested that a decrease in Shags (*Phalacrocorax a. aristotelis*) in Cornwall was the result of the destruction of fishes of the blenny type by the cold.

PODICIPITIDÆ. There were reports of a decrease of Great Crested Grebes (*Podiceps c. cristatus*) in Bedfordshire and

Lancashire, and of an increase in Leicestershire. Little Grebes (*Podiceps r. ruficollis*) seemed to have decreased largely in numbers in the north-eastern counties.

COLUMBIDÆ. The Wood-Pigeon (*Columba p. palumbus*) is reported to have been much reduced in north Sussex, and to have shown some decrease in three other areas. Some dead birds were recorded in the counties along the Welsh border. The species seems to have suffered heavier reduction in 1939-40. Stock-Doves (*Columba œnas*) are reported as showing a decrease in five English counties, and a large decrease in Co. Mayo and Galway.

LIMICOLÆ. Curlew (*Numenius a. arquata*) were largely decreased in Northumberland and Durham, and in the Lledr valley in North Wales. Woodcock (*Scolopax rusticola*) were nearly wiped out in parts of Montgomeryshire and decreases of Snipe (*Capella g. gallinago*) were reported from eight English counties, and from Co. Mayo. Slight decreases of the Redshank (*Tringa totanus britannica*) are recorded. The Lapwing showed great local variation in status, but many reports were received of large reductions in numbers. The population of Lapwings seems to be at a low level throughout Britain, but it is suggested that the hard weather of 1946-47 only accelerated a decline which has been in progress for some years. In many parts of north and eastern England Lapwings left at the beginning of the frost, returning in some strength with the thaw in mid-March.

RALLIDÆ. Both Moorhens and Coots were greatly reduced in many areas.

No comments are made on the Anatidæ, Laridæ and Tetraonidæ, for there were but few reports on the status of the birds within these groups.

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BIRDS OF INNER LONDON, 1947

COMPILED FOR

THE LONDON NATURAL HISTORY SOCIETY

BY

C. B. ASHBY.

IN 1929 A. Holte Macpherson prepared "A List of the Birds of Inner London" (*antea*, Vol. xxii, pp. 222-244) and this has been kept up to date by annual papers (*antea*, Vols. xxiii-xl). For the purpose of the series Inner London is regarded as a rectangle eight miles (E.-W.) by five miles (N.-S.) centred on Charing Cross. Notes for the present report have been selected with previously published material in mind and, as they are complementary to it, do not constitute a full list of occurrences in Inner London during the year. For a wider appreciation of the records in relation to the bird-life of the London Area as a whole reference should be made to the *London Bird Report*.

Thanks are due to the Records Committee of the L.N.H.S. Ornithological Section and to the observers—too numerous to be mentioned all by name—who have sent in notes. The following is a list of those whose initials are used in the report: G. R. Auerbach, T. L. Bartlett, R. L. Collett, P. W. E. Currie, H. F. Greenfield, Dr. E. O. Höhn, F. J. Holroyde, R. C. Homes, Mrs. H. M. Rait-Kerr, J. M. F. Lightly, Miss C. E. Longfield, Dr. G. C. Low, Miss E. McEwen, T. H. L. Mills, E. M. Nicholson, C. H. F. Parsons, B. A. Richards, R. H. Smith, W. G. Teagle, A. V. Tucker, Prof. E. H. Warmington, R. B. Warren, E. C. Watt, C. A. White.

CARRION CROW (*Corvus c. corone*).—Not confined to the parks; noted in built-up areas at all times of the year.

JAY (*Garrulus glandarius*).—Nested in Battersea Park (C. B. Horsburgh in *The Field*, July 26th), Kensington Gardens (E.M.N., W.G.T.) and probably in the grounds of Buckingham Palace (E.M.N.); non-breeding records from Hyde Park, Green Park and the grounds of the Royal Hospital, Chelsea. Two were seen in summer in Egerton Crescent, a residential area (F. Newman in *The Field*, p.272, 6.9.47).

STARLING (*Sturnus v. vulgaris*).—Nested in Westminster (E.M.N.), Kensington Gardens (W.G.T.), Hyde Park, Russell Square and Torrington Square (E.H.W.); probably 6-8 pairs bred in the bombed area round Cripplegate (P.W.E.C.).

HAWFINCH (*Coccothraustes c. coccothraustes*).—Kensington Gardens, a pair from April 23rd to May 2nd (B.A.R., W.G.T.) and a hen on July 16th (E.McE.) and July 25th (G.C.L.). A singing male was noted in a garden at St. John's Wood from June 15th to 19th (H.M.R.K.). This species has apparently been previously recorded in Inner London only five times during the last 65 years.

BULLFINCH (*Pyrrhula p. nesa*).—Kensington Gardens, a pair on May 12th and 15th were reported by the park keepers (per G.C.L., W.G.T.).

PIED WAGTAIL (*Motacilla alba yarrellii*).—Cripplegate, one pair nested on a bombed site and reared two broods (P.W.E.C. *et al.*).

COAL-TIT (*Parus ater britannicus*).—Battersea Park, noted in April, May and October (E.M.N.). Kensington Gardens, one-two from February to September and one on December 16th; a pair feeding a fledgling on June 13th (W.G.T. *et al.*).

WOOD-WARBLER (*Phylloscopus sibilatrix*).—St. John's Wood, one feeding in creepers for an hour on August 16th (H.M.R.K.).

SEDGE-WARBLER (*Acrocephalus schoenobaenus*).—Battersea Park, one by the lake on May 4th (E.M.N.). Regent's Park lake, two singing on April 17th (E.H.W., E.C.W.) and one on May 3rd (E.M.N.).

LESSER WHITETHROAT (*Sylvia c. curruca*).—Kensington Gardens, several together in bushes on April 20th (J.M.F.L.) and one on May 13th (B.A.R.).

WHINCHAT (*Saxicola rubetra*).—Kensington Gardens, a first year bird on August 12th (G.C.L.).

REDSTART (*Phœnicurus ph. phœnicurus*).—Kensington Gardens, a cock on April 14th (B.A.R.); one on August 8th, August 25th and October 2nd (G.C.L., C.H.F.P., W.G.T.).

BLACK REDSTART (*Phœnicurus ochrurus gibraltariensis*).—At least six pairs bred; for fuller details, see *antea*, p. 267.

NIGHTINGALE (*Luscinia m. megarhyncha*).—St. John's Wood, one singing in a deserted garden on May 4th and 6th (H.M.R.K.).

GREEN WOODPECKER (*Picus viridis pluvius*).—St. John's Wood, one in a garden on March 12th (H.M.R.K.).

GREAT SPOTTED WOODPECKER (*Dryobates major anglicus*).—Kensington Gardens, noted at all seasons and one pair bred (G.R.A., B.A.R. *et al.*). Odd birds reported from Hyde Park, Regent's Park, St. John's Wood and South Kensington.

KESTREL (*Falco t. tinnunculus*).—Many records at all seasons from built-up areas, bombed sites and parks. Fetter Lane, one pair nested unsuccessfully (F.J.H.). Kensington, two or more circling high up and calling repeatedly on each of three warm, still, moonlight nights between midnight and 3 a.m., October 2nd-4th (C.E.L.; cf. case of nocturnal hovering, *antea*, Vol. xxxix, p. 217).

SPARROW-HAWK (*Accipiter n. nisus*).—Less frequent than Kestrel, but single birds reported at all seasons in the parks and from Chelsea, City, St. John's Wood and South Kensington.

MALLARD (*Anas p. platyrhyncha*).—Continue to frequent static water tanks in spring and bred at at least one of them (R.L.C. *et al.*).

SCAUP-DUCK (*Aythya m. marila*).—Kensington Gardens, a drake on January 18th, January 22nd and March 18th, a duck from March 18th to May 9th, and a juvenile male from December

13th-31st; St. James's Park, a duck on March 16th and a drake from January 23rd-29th and from March 24th to April 9th (G.C.L., W.G.T. *et al.*).

GOLDENEYE (*Bucephala c. clangula*).—A brown-headed bird on the Round Pond, Kensington Gardens, from October 25th to November 5th and one in St. James's Park from November 28th to the end of the year (T.L.B., C.H.F.P. *et al.*).

LONG-TAILED DUCK (*Clangula hyemalis*).—A female or immature was seen on the Thames between Southwark and Hungerford Bridges from March 14th-18th (F.J.H., R.B.W.). On March 23rd a similar bird, probably the same, was seen in St. James's Park and was recorded on at least 43 days until July 24th, becoming tame enough to feed with the park ducks on bread thrown by visitors (E.M.N., W.G.T. *et al.*). One, presumably the same, was seen in Regent's Park on July 16th (E.C.W.). This is the first record for Inner London.

CORMORANT (*Phalacrocorax c. carbo*).—Euston, one flew over on January 9th (R.H.S.).

STOCK-DOVE (*Columba oenas*).—At least one pair bred in Kensington Gardens (E.McE., W.G.T.).

REDSHANK (*Tringa totanus*).—Five flew south through Kensington Gardens on March 12th (C.H.F.P.).

GOLDEN PLOVER (*Pluvialis apricaria*).—A party heard flying south over St. John's Wood on January 5th was unseen owing to mist (H.M.R.K.).

COOT (*Fulica a. atra*).—St. James's Park, one ringed on 24.1.44 was recovered where ringed on 19.2.47 (T.L.B.); for notes on territory and numbers, see *antea*, Vol. xl, pp. 194-198.

QUAIL (*Coturnix c. coturnix*).—One was picked up in Warwick Square on September 18th (The Supt., Zoological Gardens).

CORRECTION. In the notes for 1946 (*antea*, pp. 10-11) a record of a Peregrine Falcon seen by Mr. H. Bentham on April 1st should read April 12th.

OBSERVATIONS ON THE GREAT SHEARWATER IN THE BREEDING-SEASON

BY

G. J. BROEKHUYSEN, PH.D., Dept. of Zoology, University of Cape Town.

(Plates 55-59).

THE Great Shearwater (*Puffinus gravis*) is common in the North Atlantic during the northern summer months and its distribution and migratory movements in that region have been studied and summarized by Wynne-Edwards (1935). According to *The Handbook* it is a summer- and autumn-visitor to the British Isles where it has frequently been recorded off the coast.

Very few, however, have had the fortune of visiting its breeding-grounds. This species is only known to breed on Nightingale and Inaccessible, two of the three main islands, which form the Tristan da Cunha group (Latitude 37° 5' S. and Longitude 12° 15' W.).

An expedition to Tristan da Cunha was recently organized by a number of leading South African Fishing and Canning Companies to investigate some of the marine-biological and agricultural problems of these South Atlantic islands. As a member of this expedition I had a chance of visiting the breeding-quarters of the Great Shearwater. We first landed on Nightingale on February 16th, 1948. The island has a circumference of approximately 2½ miles and lies at a distance of 23.8 miles from Tristan da Cunha, the main island of the group. Nightingale is by far the lowest of the three islands, the highest point being 1,242 feet. Practically the whole island is covered with a very dense vegetation of tussock-grass (*Spartina arundinacea*), which is so high that it closes over one's head. It is amongst this tussock that the Great Shearwater has its burrows. Thousands of birds breed here and the greater part of the ground is undermined by the burrows, which makes walking very strenuous. At the time we visited the island we only saw fairly large young, completely covered with blue-grey down, which was lighter on the breast and ventral part of the neck. According to the Rev. O. P. Lawrence, the leader of the expedition, who spent over two years on Tristan da Cunha during the war, the Great Shearwater lays in early September and the young fly in late May. This agrees with Matthews's (1932) suggestion that the breeding-season is September to November. Wynne-Edwards (1935) referring to the breeding-season writes "one would infer from North Atlantic observations that it begins about Christmas and continues till March or April". Our observation of fairly large downy young in the middle of February seems to agree with Wynne-Edwards's statement. The possibility remains, however, that the breeding-season of this species is spread out over a fairly long period. The digging out of a large number of nests is required to settle this

point, but unfortunately we did not have the opportunity to do this.

The old birds spend most of the day-time out at sea, where we often saw them during our cruises in the M.V. "Pequena". They were then usually seen in fairly large flocks, all sitting on the water. Wynne-Edwards in quoting Collins also mentions this habit of sitting in "rafts". We could not determine whether the birds were feeding while concentrated in these "rafts". They were certainly not seen to do so while being approached.

During the morning and early afternoon very few old birds were noticed on the island. After 4 p.m., local time, the Great Shearwaters started to come back to the island. While walking on the tussock-clad slopes we saw the first birds alighting rather clumsily among the tussock and on the path. At about 6 p.m., local time, the air above and around Nightingale became thick with the thousands of shearwaters which were wheeling around before plunging down into the dense tussock-jungle to seek their burrows. It was a most fascinating sight. The noise was terrific. The perfectly symmetrical cone of Tristan da Cunha silhouetted against the soft pink evening sky in the distance made the picture superb. Lawrence, Macnae and the writer traversed the tussock-jungle until we reached some projecting rocks just on the fringe of the plateau. There we sat amongst the wheeling, croaking birds and absorbed the unique situation. Some of the shearwaters came so close that they could be photographed with flashlight. The croaking noises uttered by the birds were most peculiar, and strongly reminiscent of the noise made by the old-fashioned hooters of early motor-cars. The air remained thick with wheeling birds until 8 p.m., by which time most of the birds had settled down. The fact that these birds find their own nests in the burrows amongst the dense tussock-grass is an achievement in itself. Wilkins (1923), who visited Nightingale and Inaccessible in May, 1922, also records this flocking of shearwaters to the islands after sunset, although at that time there was no trace of breeding activities.

We noticed that, as is the case with other petrels, the Great Shearwater cannot take to flight on level ground, and it usually has to get on to an elevated point, such as a rock, before it can take off. Some of the rocky outcrops amongst the tussock-grass showed distinct signs of wear and tear, caused by the feet of the numbers of birds which daily climb up the sides in order to take off, usually very early in the morning.

We left Nightingale early on the morning of the 17th, but on March 4th, Mr. W. Macnae, four islanders and the writer again visited the island, where we spent most of the day and the evening. Once more we saw the shearwaters coming in at sunset. The Great Shearwater is locally known as the "petrel". The species is in great demand by the islanders, who come over

in their open boats from Tristan to kill large numbers of the young, together with the young of the Yellow-nosed Albatross (*Thalassarche ch. chlororhynchus*) and the Rock-hopper Penguin (*Eudyptes c. cristatus*). The birds provide them with cooking-fat and oil for their oil-lamps.

As regards the feeding habits of the Great Shearwater, Bent (1922) mentions active diving on occasions. According to this author "it dives from the surface of the water on which it first alights" and "is able to swim well under water". *The Handbook* mentions that if necessary the birds will dive in pursuit of prey; they stoop suddenly, flop on the water breast first with considerable violence, then plunge and literally fly under water, afterwards swallowing the catch on the surface. Wynne-Edwards (1935) never saw this species dive. According to this author "when feeding they fly just clear of the waves, alighting every few yards and then rising again; like Fulmars they have to settle before taking food". I can confirm these observations. My observations were made on February 28th at Gough Island, some 200 miles south of Tristan da Cunha. The ship was anchored in a small bay, sheltering from a strong northerly wind. At about 6 p.m., local time, thousands of birds, consisting of Great Shearwaters, Silver-grey Petrels (*Priocella antarctica*), subantarctic Terns (*Sterna v. vittata*), Noddies (*Anous s. stolidus*) and Sooty Albatrosses (*Phœbetria f. fusca*) were feeding close to the ship. Although the weather was appalling, with frequent squalls, I had a perfect opportunity of comparing the different ways of feeding of the different species. The Great Shearwaters were flying slowly just above the water, looking down into it and frequently alighting horizontally. Food was then caught by dipping the bill into the water. On some occasions they dived just underneath the surface for a very short time, after which they took to flight again to repeat the procedure. As we did not shoot any birds we cannot be certain of the nature of the food taken. Plankton samples showed an abundance of a certain Pteropod and it is possible that this was the organism the birds were catching. Owing to the very bad weather we had at Gough, only three hours were spent on the island itself and it was not possible to check the observations made by others that this shearwater does not breed here. They were certainly very abundant in the surrounding waters. According to Mathews only the Gough Island Shearwater (*Puffinus assimilis elegans*) breeds on this island. Several of these birds, which are smaller and on the whole darker than the Great Shearwater, were seen.

According to the literature the Great Shearwater has only been found breeding on Nightingale and Inaccessible. Inaccessible was visited twice, the first time on the morning of February 17th and the second time on the afternoon of March 5th. On both occasions we were only on the island for a short time and did not



Fig. 1. NIGHTINGALE, THE BREEDING GROUNDS OF THE GREAT SHEARWATER.

Fig. 2. FOOTMARKS OF GREAT SHEARWATER AND ROCK-HOPPER PENGUIN
ON A ROCK AT NIGHTINGALE.

(Photographed by Dr. G. J. Broekhuysen).



Fig. 3. ADULT GREAT SHEARWATER (*Puffinus gravis*) PHOTOGRAPHED AT NIGHTINGALE.

(Photographed by Dr. G. J. Broekhuysen)



Fig. 4. A "RAFT" OF GREAT SHEARWATERS IN THE WATERS AROUND
INACCESSIBLE.

(Photographed by Dr. G. J. Broekhuysen)



Fig. 5. GREAT SHEARWATER WHEELING OVER TUSOCK-GRASS JUST BEFORE ALIGHTING NEAR ITS NESTING BURROW.

Fig. 6. GREAT SHEARWATER PLUNGING INTO TUSOCK-JUNGLE IN SEARCH OF ITS NEST-BURROW.

(Photographed by Dr. G. J. Broekhuysen)

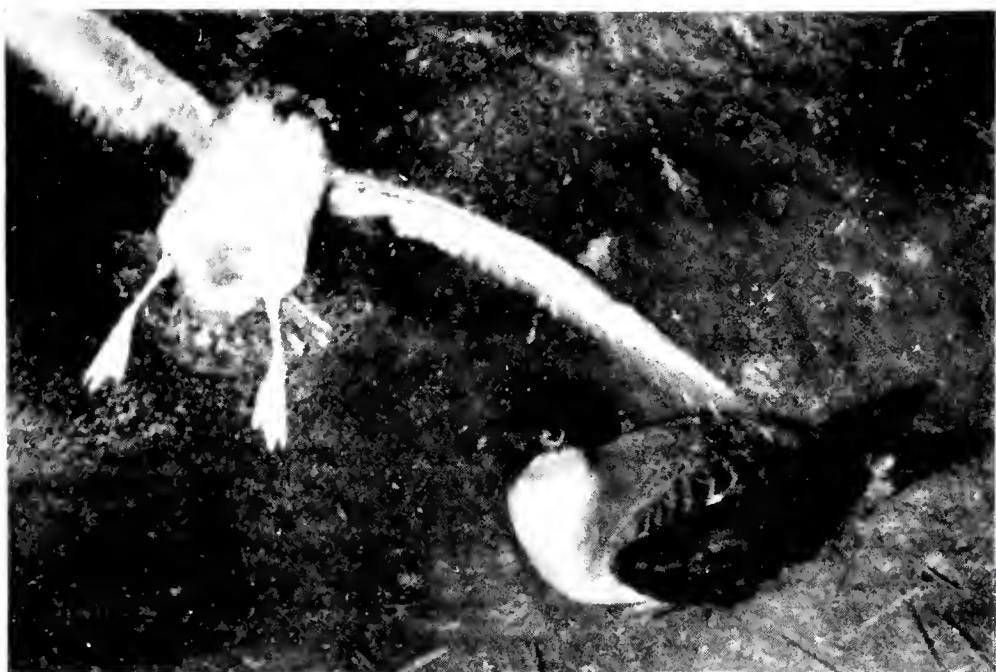


Fig. 7. TWO ADULT GREAT SHEARWATERS. ONE IS JUST ALIGHTING.
Fig. 8. YOUNG GREAT SHEARWATER REMOVED FROM ITS HOLE.
(*Photographed by Dr. G. J. Brockhuysen*)



UPPER.—STOCK-DOVES TREADING WATER, HORNSEA MERE, DECEMBER 6TH, 1947. (See p 351).

(Photographed by P. Gravett)

LOWER.—MULTIPLE NESTS OF SONG-THRUSH BUILT BETWEEN RUNGS OF LADDER. (See p. 348).

(Photographed by Miss JERVIS-WHITE-JERVIS)

climb on to the plateau. During our short stay we saw no trace of nest-burrows of the Great Shearwater.

In conclusion it may be worth while to record that the only Great Shearwaters seen on the voyages from Cape Town to Tristan and back were sighted when we were from one to two days' sail from Tristan da Cunha. Bird countings during the trip from Tristan to Gough Island and vice versa revealed an abundance of this species over the whole stretch of ocean between the two islands.

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Particulars about the equipment used in taking the photographs.

All the photographs were taken by flashlight, excepting that of a flock of Great Shearwaters on the water, and the one of a piece of rock showing the scratches made by the feet of petrels scrambling up the sides before taking off.

The cameras used were model III Leicas. The flashlight-gun was the newest model Leica synchronized flashlight-gun, manufactured in the U.S.A., which made it possible to take pictures at a two-hundredth of a second. Philips flashlight-bulbs were used. All the flashlight pictures were taken at a two-hundredth of a second, with diaphragm 6 to 9. The film used was Panchromatic plus x 35 mm. Kodak film.

NOTES.

OPEN-BEAKED PROBING OF ROOK, CARRION CROW
AND JACKDAW.

THE remarks in *The Handbook* and elsewhere on the peculiar open-beaked probing by Starlings (*Sturnus v. vulgaris*) seem to suggest that this habit is confined to these birds. This is by no means the case, as I have frequently observed Rooks (*Corvus f. frugilegus*), Jackdaws (*C. monedula spermologus*), and Carrion Crows (*C. corone*) probing the turf in the fields for leather jackets, etc., with partly opened beaks. As the beak is closed almost as soon as it is lifted from the ground it is hard to notice the habit.

DONALD A. E. CROSS.

ROOKS TAKING CARRION.

ON April 29th, 1948, on the outskirts of Mexborough I was observing a party of Rooks (*Corvus f. frugilegus*), feeding on the edge of a fallow field. I managed to approach to within ten yards under cover of bushes, and saw that all the birds were converged at one point. As I walked towards them they took alarm and flew off.

The object they had been feeding on was a dead Rook. Its intestines were torn out and, judging by the slight odour, it had been dead for some days. The feeding birds were undoubtedly Rooks and this is the first time I have heard of these birds taking carrion.

JACK H. RAYNOR.

[*The Handbook* records "carrion (dead lambs, etc.) occasional", but we do not know any other case of Rooks feeding on the remains of one of their own kind.—EDS.]

GREENFINCH TAKING SEED FROM LARCH CONES.

ON three occasions Greenfinches (*Chloris ch. chloris*) have been seen working on larch cones. While doing so, the attitudes recall those of the Crossbill. In fact, in the first instance on August 8th, 1947, when a young bird was so engaged on the top of a larch, it seemed certain at first that it was a Crossbill, but long watching with a x10 binocular revealed its true identity.

In the following December, some twenty-five Greenfinches were busy in a group of larches, hanging on the cones or reaching from an overhanging twig in attitudes like those of Crossbill and Redpoll.

The third instance was on April 9th, 1948, for a single bird.

This particular feeding behaviour had not been noticed by me before.

HENRY BOASE.

[Although conifer seeds are not mentioned as a food of the Greenfinch in the *Handbook*, they have in fact previously been recorded. Thus in *British Birds*, Vol. iii, p. 411 C. B. Ticehurst and H. F. Witherby record Greenfinches, amongst other species, feeding on seeds from ripe cones of the Scots Pine, and we suspect that this behaviour is not really very uncommon.—EDS.]

COURTSHIP FEEDING OF GOLDFINCH.

ON April 6th, 1948, I saw a Goldfinch (*Carduelis carduelis*) perched on a bush. It drooped its wings, lifted its head and opened its bill when another appeared and placed its bill inside the open bill of the first bird as though feeding it; the birds then flew off.

As this is not given in *The Handbook* I thought it might be of interest.

P. E. L. SIMMONDS.

[The male Goldfinch feeds the female during incubation, usually on the nest, as is duly recorded in *The Handbook*, but the above must have been prior to egg-laying.—EDS.]

RUDIMENTARY DISPLAY FLIGHT IN LINNET?

No mention is made in *The Handbook* of any display flight in the Linnet (*Carduelis c. cannabina*), though K. E. Hoy (*London Naturalist* for 1943, p. 7) has described four instances observed in the Epping Forest area of Essex between 1941 and 1943 of what appear to be vestiges of song-flight. Two of these refer to a fluttering descent, one to a glide and the fourth to a circular flight like that of the Greenfinch and Lesser Redpoll. On June 13th, 1948, on Alderholt Common, east Dorset, I observed an apparent instance of the last type of song-flight. A cock Linnet flew in rather erratic circles, uttering a single "chirp" note which I had not heard before from a Linnet, but without the bat-like flight of the typical Redpoll and Greenfinch song-flight. This bird was accompanied by two other Linnets and eventually flew off with them. I was unable to link this odd behaviour with any other manifestation of sexual activity, but it seems possible that it represents a vestigial or undeveloped display flight (cf. the rarely observed song-flight of the Blue Tit).

R. S. R. FITTER.

SONG OF FEMALE CHAFFINCH.

REFERRING to the British Chaffinch (*Fringilla cœlebs gengleri*) *The Handbook of British Birds* records imperfect song occasionally from female.

On March 12th, 1948, I saw and heard a female Chaffinch singing from the branches of a Scots pine, in a strip of planting in Midlothian. It sang in company with male Chaffinches, and the carrying power of the song was fairly good, being quite distinct at 40 yards distance.

I had a close view of it as it perched on an open branch, raised its bill to an angle of about 45 degrees and sang. The pitch was lower than the song of the males and the rhythm was different.

I would give the song as "chirr-chirr-chirr-chirr-chirr-chirr-chirr-chirr-chirr-chirr-chirr." There were eleven notes as given, with a decided emphasis on the third note, and practically no variation in pitch. After the emphasized note, the remainder were evenly timed with no terminal flourish. The tone was quite different from the

male song, and the bird sang at regular intervals repeating itself exactly.

I suppose this could be described as imperfect song, but it gave the impression of a finished performance, and at first I could not connect it with the song of the Chaffinch. HUGH HALLIDAY.

[Observations in recent years have shown that a simplified form of song from the female is apparently not very rare.. See *antea*, Vols. xxxiv, pp. 218, 251, xxxv, p. 37, xxxvi, p. 25, xxxviii, pp. 53, 94.—Eds.]

INTERRUPTED EGG-LAYING OF CHAFFINCH.

At the end of March, 1948, a hen Chaffinch (*Fringilla cœlebs gengleri*) was, to my amusement, busily building her nest in a four foot high, trimmed yew hedge, just six feet from my dining room window. I had occasion to pass the nest daily, and the first egg appeared on April 6th. The nest was then apparently deserted, but I still kept it under daily observation. To my great surprise a second egg was deposited on April 12th, to be followed by four more eggs, laid daily, thus making a large clutch of six eggs. The egg type was sufficiently distinctive to make it quite certain they were the product of the same bird.

W. M. CONGREVE.

UNUSUAL BEHAVIOUR OF HOUSE-SPARROW.

It appears from *The Handbook* that in the display of the House-Sparrow (*Passer d. domesticus*) the pecking of the female's cloaca by males has only once been recorded.

On March 7th, 1948, I watched at close range a male House-Sparrow pursue a female into a holly tree. Immediately the female, after perching, solicited the male, which was on the same branch. The latter left the branch and hovering just beneath the female pecked vigorously at her cloaca for several seconds. Apparently tiring, the male regained its perch, paused for a little and began again. After this attack, the female left with the male in hot pursuit.

E. A. SIMMS.

[Another record of similar behaviour has been published, *antea*, Vol. xxxviii, p. 296.—Eds.]

AERIAL EVOLUTIONS BY HOUSE-SPARROWS.

From mid-January to mid-March, 1948, I had the opportunity of making daily observations upon a roost of House-Sparrows (*Passer d. domesticus*) situated in thick ivy growing upon a 20 ft. stone wall in King's College, Cambridge, and noted the following communal behaviour, which I believe to be unusual, having never experienced it before. At about fifty minutes before sunset some three or four hundred House-Sparrows would collect on the house-tops to the east of the wall and, when a large number was assembled, would carry out aerial evolutions in exactly the same manner as Starlings (*Sturnus v. vulgaris*), finally "rocketing" down into the ivy, where there was considerable movement and excited calling for another twenty minutes or so, particularly if a Kestrel (*Falco t.*

tinnunculus), which regularly visited the roost, was in the neighbourhood. The evolutions were performed by flocks of birds numbering from five to a hundred and continued for from five to ten minutes at a time, returns being made to the house-tops at intervals. Occasionally passing Starlings were attracted and would join the House-Sparrows for a few wheels and turns. Noticing that the time by which all the birds had entered the ivy varied from day to day, I measured the amount of light with a photometer on a number of successive days and found that the time was closely correlated with the intensity of the light, being particularly late when there was snow on the ground. On all occasions the intensity of the light when the last birds entered the roost was found to be between 8.8 and 9.3, irrespective of the actual time. I may add that Mr. N. W. Moore informs me that he noted identical behaviour in a flock which roosted in one of the courts of Trinity College.

P. E. PARRY.

CRESTED LARKS IN COUNTY OF LONDON.

ON March 8th, 1947, during the cold spell, I observed a pair of Crested Larks (*Alauda cristata*) feeding on the mud and gravel exposed at low tide on the bank of the Thames between Hammer-smith Bridge and Chiswick Eyot. I watched them for ten minutes or a quarter of an hour from the tow-path through a pair of very good Zeiss glasses, x7. They were not shy.

They were rather smaller than Skylarks; colour streaked brown, no white on the tail; legs flesh-coloured; a very noticeable crest, darker than the rest of the plumage, almost blackish-brown. The crest was sometimes raised and sometimes lowered, but in either case it projected definitely behind the line of the head, forming an angle with it. I verified this by moving about until I got the crest silhouetted against the water. One bird had a longer crest than the other. I did not see them in flight, neither did they utter their call-note.

I am familiar with this species on the Continent, where I have frequently seen them. I had, however, forgotten that the colour of the legs differs from the yellowish-brown of the Skylark and also the fact that the hen bird has a shorter crest than the cock. In these two respects, therefore, I was not seeing what I expected to see.

MONICA CURTIS.

VARIANT *MOTACILLA FLAVA* IN NORFOLK.

ON April 24th, 1947, a strange, ashy-grey wagtail, in company with three or four Yellow Wagtails (*Motacilla flava flavissima*) appeared on the Bure river-meadows at Aylsham, Norfolk.

The next day it was seen again, with a normal male Yellow Wagtail in attendance, and was watched carrying a bunch of rootlets to a partly-built nest in a deep hoof-print. Chestnut horse-hair furnished the lining and the full clutch of five typical Yellow Wagtail's eggs was completed on May 5th.

Misfortune overtook the nest soon afterwards, when Jaekdaws quartered the ground, and the birds moved away.

A water-colour sketch of the female was made direct from life, and a field description taken through 6x binoculars at five yards, range, and have been submitted with these notes.

The description appears to tally closely with that of the 1941 Hiekling pair (Rivière, *antea*, Vol. xxxvi, p. 127).

R. A. RICHARDSON.

ON the morning of April 14th, 1948, a male of the variant form of "Yellow" Wagtail resembling the Siberian race or Sykes's Wagtail (*Motacilla flava beema*) was seen feeding in the grass amongst some cattle on the Salthouse Marshes, Norfolk. The bird was tame and we watched it closely through field-glasses for a considerable time. The very pale blue-grey forehead, crown, nape and ear-coverts and the white eye-stripe and chin seemed to make identification quite certain. With it was a bird with a conspicuous yellow eye-stripe—apparently a normal female Yellow Wagtail (*M. f. flavissima*). We searched the area again the following morning, but failed to find the male bird again, though the female was still present.

W. H. THORPE and W. M. THORPE.

COURTSHIP FEEDING OF TREE-CREEPER.

ON May 10th, 1945, near Pitlochry, a Tree-Creeper (*Certhia familiaris britannica*) feeding alone flew to a tree near by and there fed another adult working on the trunk. There was no noticeable excitement; calls could not be heard with certainty owing to the noise of the adjacent river.

HENRY BOASE.

[*The Handbook* (Supplementary Additions and Corrections) states that during incubation the female "partly gets own food and [is] partly fed by male," but we have no details to show to what extent this takes place off the nest.—EDS.]

CONTINENTAL BLUE TIT IN SUSSEX.

ON November 22nd, 1944, I was surprised to find a Blue Tit moribund in the street in the middle of the town of Littlehampton. When I prepared the specimen I could find no evidence of any disease nor injury. The bird is a first winter specimen, but could not be positively sexed.

From the paleness of its mantle and the broad white tips to its secondaries, it must be regarded as an immigrant *P. c. caeruleus*. This, and the first Kentish specimen, recorded by myself (*antea*, Vol. xxxiii, p. 251) and seen by the late Mr. H. F. Witherby, agree perfectly.

JAMES M. HARRISON.

ROOSTING OF BRITISH COAL-TIT.

RUTTLEDGE, in his study of the roosting habits of the Irish Coal-Tit (*Parus ater hibernicus*) (*antea*, Vol. xxxix, pp. 326-336) records only one roosting-site in an old nest. Thus it is probably worth noting that on several evenings towards the end of February,

1947, I found a British Coal-Tit (*P. a. britannicus*) roosting in an old thrush's nest 12 feet high in a creeper at Englefield Green, Surrey. I passed the nest each evening at about 5 p.m., G.M.T.; the bird was therefore at roost at least half-an-hour before sunset on each occasion. The weather was at the time very cold and dull, with much snow still on the ground, and this may have been one of the factors affecting the apparently early hour of roosting.

D. J. MAY.

NORTHERN WILLOW-WARBLER IN LANCASHIRE.

AN adult male of the northern race of Willow-Warbler (*Phylloscopus trochilus acredula*) collected near Burnley, Lancashire, on April 26th, 1947, would appear to be the first recorded example for the county.

The skin has been deposited in the collection of the Yorkshire Museum, York.

P. A. CLANCEY.

EARLY WOOD-WARBLER IN WILTSHIRE.

A semi-retired gamekeeper, by name R. Haskell—a quite first-class bird observer—has informed me of the occurrence of a Wood-Warbler (*Phylloscopus s. sibilatrix*) near his cottage at East Grimstead, Wiltshire, on March 24th, 1948. He knows the species extremely well, as various pairs breed yearly in the vicinity of his home.

Thorough questioning entirely failed to shake his statement. He described the bird as being "as yellow as a Canary" and the characteristic song, which he adequately mimicked. I asked him if he had seen Willow-Warbler this year. He answered "no, but Chiffchaff arrived some time ago." This latter I can personally confirm, while Willow-Warbler had not then appeared (April 5th) in the area over which Haskell has his beat, as far as I could personally ascertain. I have no hesitation in accepting the Wood-Warbler record detailed by Haskell.

W. M. CONGREVE.

[It is perhaps almost superfluous to point out that a Wood-Warbler is *not* "as yellow as a Canary", but no doubt the phrase was used loosely to emphasize the strongly yellow appearance as compared with other *Phylloscopi*. *The Handbook* records an occurrence on March 16th and on April 5th and 7th.—Eds.]

EARLY WHITETHROAT IN YORKSHIRE.

ON March 18th, 1948, my son reported having seen a Whitethroat (*Sylvia c. communis*) near Brompton, Yorkshire, and also heard it utter a few notes of song. On the 19th I accompanied him to the locality, but did not see the bird though the "conversational" notes were heard from a copse near by. A visit to the copse was made during the afternoon of the 20th, when the bird was both seen and heard. The species was observed again on the 22nd. The only earlier date mentioned in *The Handbook* is March 14th (Ireland).

JOHN P. UTLEY.

MULTIPLE NESTS OF SONG-THRUSH.

I have received the following particulars of a case of multiple nesting of a Song-Thrush (*Turdus e. ericetorum*), which occurred at Melton, near Woodbridge, Suffolk, at the house of Miss Jervis-White-Jervis, who has kindly supplied the photograph reproduced in plate 60. The photograph shows six nests built by the same bird in April, 1946, between the rungs of a ladder hanging on a wall. Four eggs were laid in one nest and two in another, but no young were hatched.

In the spring of 1947 four more nests were built, presumably by the same bird, but the ladder was moved before any eggs were laid.

A. R. LUCAS.

[The phenomenon of multiple nesting has now been recorded on a number of occasions and always involves artificial situations where there is a series of identical or very closely similar sites adjacent to one another which the birds fail to distinguish (e.g., the spaces between the rungs of a ladder, as in the present case, or between the rafters of a barn) or occasionally objects such as a beam or the guttering of a roof whose uniformity throughout their length seems to cause confusion. We are aware of one other case relating to a Song-Thrush (*antea*, Vol. xii, p. 68). Other cases have been recorded in *British Birds* involving Chaffinch (iv, p. 307), Pied Wagtail (xxii, p. 86), Spotted Flycatcher (xxii, p. 118), Blackbird (xiii, p. 108, xix, p. 109, xxxi, p. 56), Redstart (xii, p. 68) and Robin (v, p. 132).—EDS.]

FLOCKS OF WHINCHATS ON SPRING MIGRATION.

On April 29th, 1948, I met with a flock of 27 Whinchats (*Saxicola rubetra*) in the lower Cuckmere Valley, Sussex. The birds, most of which were males, were feeding together in a meadow. When put up the whole flock moved off together. On the same day, Messrs. J. St. C. and C. St. C. Simmons saw a flock of 15 Whinchats on Crowlink, a few miles away from the locality where I saw my birds. *The Handbook* makes no mention of such associations of Whinchats on spring migration and J. Walpole-Bond, in *A History of Sussex Birds*, writes: "Throughout the entire in-movement it is very unusual to encounter more than, say, six or eight birds together." It may be added that April 29th, 1948, was a day on which the migratory movement of a number of species was very marked on this part of the Sussex coast. There had been strong winds on the previous day and foggy conditions during the night and early morning.

D. D. HARBER.

SCOPS OWL IN ORKNEY.

A male Scops Owl (*Otus s. scops*) was picked up dead in Westray, Orkney, by J. Thomson on April 30th, 1948. The bird is now in the Royal Scottish Museum.

G. T. ARTHUR.

[There is a previous Orkney record of one taken alive at the lighthouse on North Ronaldshay on June 2nd, 1892.—EDS.]

DAUBENTON'S BAT AS PREY OF KESTREL.

ON April 19th, 1948, as I was walking along a lane near Combe-in-Teignhead, South Devon, I surprised a female Kestrel (*Falco t. tinnunculus*) on the ground with something in its claws. My appearance was so sudden that it leapt into the air leaving its prey on the ground; I picked it up and found it to be a Daubenton's Bat (*Myotis daubentonii*); it was undamaged and flew from my hand.

(Details of identification of the bat: Span about 10", white under-parts, greenish-brown back, ears set far apart and longer than wide, wing rising from the middle of the foot, whitish hairs on the toes, no hair on the edge of the tail membrane, tail long, projecting one vertebra beyond the membrane).

GEOFFREY H. GUSH.

[Bats are known to be taken exceptionally by Kestrels, and Noctule (*Nyctalus noctula*) and Pipistrelle (*P. pipistrellus*) have been recorded. No doubt on occasions any species may be taken.—Eds.]

NESTING SEASON AND CLUTCH-SIZE OF COMMON BUZZARD.

WITH reference to previous notes on this subject (*antea*, Vol. xxxix p. 346; Vol. xl pp. 182-3; Vol. xli pp. 53-4), my experience of the nesting of the Common Buzzard (*Buteo b. buteo*) in Devon and Somerset tallies very closely with the details given by the Rev. C. J. Pring. My records confirm his average of April 15th-25th, as the date of laying. My earliest nest, allowing for whatever is the correct incubation period, was one with two eggs and one chick just hatched on May 11th.

Sixty nests examined consecutively have contained:—

C/5	C/4	C/3	C/2	C/1
2	4	38	15	1
(both the same bird)	(two the C/5 bird)			

One bird in particular was especially prolific and showed a remarkable fluctuation in clutch-size from year to year, the details being as follows:—

1930	1931	1932	1933	1934	1935	1936	1937
C/5	C/3	C/4	C/3	C/4	?	C/3	C/5

In 1932 the bird actually laid a clutch of 4 twice, as a further visit in June revealed that some disaster had evidently befallen the first laying, since she was sitting on c/4 in one of the alternative eyries. In 1935 the pair had evidently been robbed and I was unable to make another visit that year. The site was in the centre of Exmoor, where the supply of rabbits seems to be fairly constant.

A. L. W. MAYO.

As this matter has been brought up recently it may be of interest to add further details of the 33 nests referred to by me in *British Birds* (Vol. xxxix, p. 338).

My earliest record in Devon for the nesting of the Common Buzzard (*Buteo b. buteo*) is April 4th, 1943 (first egg of c/4). Other records for April are:—c/3, April 23rd, 1943; c/3, April 27th and c/3, April 28th, 1943. Early records for young include:—3 young, May 25th, 2 young, May 26th, and 3 young, May 27th, 1943. Apart from these, all nests containing eggs were found during May, those with young during June.

Clutch-sizes were distributed as follows:—

C/4	C/3	C/2	C/1
2	24	6	1

R. A. W. REYNOLDS.

POSSIBLE DISPLAY OF EGYPTIAN VULTURE.

ON February 24th, 1948, there were ten Egyptian Vultures (*Neophron p. percnopterus*) soaring over Tiberias, Palestine. Suddenly one pair broke away and one of the birds proceeded to chase the other all over the sky at full speed with wings flapping vigorously all the time. Once or twice they both did a vertical, twisting dive together for a short space. There is no description of display of any sort in *The Handbook*. J. P. PAIGE.

NOTE OF GREAT WHITE HERON.

DURING the winter I had several opportunities of watching Great White Herons (*Egretta a. alba*) in Northern Palestine. Only on one occasion did I hear any call made. The bird was flying along normally when it straightened its neck in a flash to its full extent, gave out a kind of rolling grunt and withdrew its neck again as rapidly as it had extended it. J. P. PAIGE.

[*The Handbook* mentions only "low croakings" from breeding adults on the authority of R. B. Lodge.—Eds.]

BLUE-WINGED TEAL IN NORTHUMBERLAND.

ON April 17th, 1948, Mr. J. R. Crawford of Sunderland saw a drake Blue-winged Teal (*Anas discors*) on a reed-fringed pond in a field about a mile and a half from the coast in south-east Northumberland. It was in company with six Shoveler, several Tufted Duck, a pair of Pochard and a pair of Garganey, which for some time had been making this pond their headquarters. He saw the bird with glasses under very favourable conditions and the pencil sketches and notes on colouring that he made on the spot leave no doubt that the bird was correctly identified. He says of it that—"It flew quickly at alarm and would allow no near approach, keeping strictly in the company of the Shovelers". The pond was visited by Mr. Crawford and other observers on several subsequent occasions, as were other similar ponds in the neighbourhood, but the bird was not seen again.

The occurrence is of interest following the suggestion that Blue-winged Teal may be breeding in a feral state in Lincolnshire. (*antea*, p. 122). GEORGE W. TEMPERLEY.

BREEDING OF GARGANEY IN WARWICKSHIRE.

WHAT appears to be the first fully authenticated record of the Garganey (*Anas querquedula*) breeding in Warwickshire was made during 1947, when at least one pair bred near Baginton Sewage Farm. Two pairs were present throughout the breeding-season, but although circumstantial evidence suggests that both pairs bred, the young of one pair only were seen.

The first pair arrived on May 3rd, followed by the second on May 16th. Between the latter date and June 24th, when the young first appeared, very little was seen of the females, although the males, usually together, were seen almost daily. The young, seven in number, were attended by the female only and at first remained much in the cover of the marsh vegetation. This vegetation made subsequent observation very difficult and any young of the second pair may have been overlooked, or may even have been led to the nearby River Avon, which is in places very shallow and covered with reeds, etc. The young birds were observed several times during July and early August and when last seen resembled the adult female to a marked degree.

Garganey were again seen at Baginton Sewage Farm between April 2nd and April 10th, 1948. It is believed that two pairs were present on the former date, but although the two drakes were easily identified, poor light made positive identification of the females impossible, as about 60 Teal (*Anas c. crecca*) were also present.

R. W. M. LEE.

NEST-BUILDING BY UNPAIRED SLAVONIAN GREBE.

A Slavonian Grebe (*Podiceps auritus*) in breeding plumage was present for about a month in the spring on a gravel pit in Middlesex, and was seen by many observers. While watching this bird on May 27th, 1948, I saw it diving repeatedly near a small island, and emerging with what I at first took to be a fish in its bill. Closer inspection showed that pieces of water-weed were being brought to the surface and that an attempt was being made to build a nest near to the island. After a short time the bird swam away and fished normally. I saw no second bird, nor, to the best of my knowledge, has one been recorded.

T. BISPHAM.

UNUSUAL BEHAVIOUR OF STOCK-DOVES.

(See plate 60).

ON December 6th, 1947, at Hornsea Mere, East Yorks, an entire flock of some 40 Stock-Doves (*Columba ænas*) was observed to hover a foot or so above the water and then to touch it with the feet, treading water for two or three seconds. During these actions the head of each bird pointed upwards, the wings were held back and the tail was fanned and depressed. The birds were then seen to fly some fifty yards towards the edge of the mere, gaining height, only to circle round to repeat the performance,

which they were observed to do six times. The same stretch of water was chosen for the treading on four of these occasions.

On one occasion, one bird of the flock was seen to put its head under the water and another floated buoyantly for a few seconds.

E. CRACKLES.

[There are several previous records of Stock-Doves alighting on water (*antea*, Vol. xxix, p. 127, Vol. xl, pp. 119, 187, 254), but we know of no other record of such behaviour as Miss Crackles describes.—Eds.]

SNIPE CARRYING YOUNG.

ON May 13th, 1948, I visited the nest of a Snipe (*Capella g. gallinago*) near Winchester to find that three of the eggs had hatched and the fourth egg was chipped. After about an hour the last young one hatched, and when I revisited the nest the cock bird flew up from near it. The hen flew off the nest and skimmed away a few feet above the ground. I noticed that the bird seemed to be carrying something. I could not see very clearly, but it looked as if it was carrying it between its legs and steadying it with its beak.

After flying about 15 yards it dropped what it was carrying and flew into the near field. I went to see what it had dropped and discovered that it was the newly hatched chick, which was still wet but quite unhurt. I returned the chick to its nest, where it was soon joined by the mother.

I see in *The Handbook of British Birds* that this occurrence has been observed before, but I thought it worth recording.

M. B. CASEMENT.

SNIPE RAISING LEVEL OF NEST AND NESTING OFF THE GROUND.

IN going over my notes recently I came across the following observations on the Snipe (*Capella g. gallinago*) which seem worth placing on record.

Snipe sometimes try to raise the nest and its contents if danger of flooding arises. In Shropshire we had a very heavy fall of rain and snow on April 9th, 1927. This flooded most of "The Long Meadow", a rather marshy field on the Halston Estate. I had several nests of Lapwing and Snipe under observation on this field. When the floods were down I went to see what had happened. Most of the eggs had floated to the edge of the marshes and been eaten by Carrion Crows, Rooks, Magpies, etc. One Snipe (or the pair) had, however, raised their nest and their eggs some inches and saved them. The fourth egg was in the original cup. Probably they could not cope with the rise of the flood and cut their losses.

I once found a Snipe's nest *not on the ground*. A bird always left a particular spot, on Cerrig-y-big Farm in Selattyn parish, as I appeared and while I was still thirty or forty yards away. I

was sure, by the flight of the bird, that there was a nest, although the surroundings did not favour that theory—all the area was rough, old, high heather. Again and again I tried, always flushing the bird, but without success, although I each time approached from a different direction. Then one day in a temper I started to slash with my stick at a particular very thick bush of heather and only just escaped disaster. The bird had scraped out the top of the bush and made a very slight nest in the depression and it contained four eggs which hatched out. I reckoned it 20 inches above ground.

J. H. OWEN.

RED-NECKED PHALAROPE IN HERTFORDSHIRE.

ON June 5th, 1948, at about 3.40 p.m., at Little Tring Reservoir, Hertfordshire, my wife and I obtained an excellent view of a Red-necked Phalarope (*Phalaropus lobatus*) in full summer dress. It was watched for well over an hour through fieldglasses x8 and telescope x20 and x30 in clear visibility from distances ranging between 25 yards and 40 yards. The bright reddish patch on the sides of the face, white chin, breast and under-parts were all clearly noticed, together with a small white spot over the eye. In addition there appeared to be a buff spot near the median coverts. The head was slate-grey, and the back greyish with conspicuous buff streaks. It was exceedingly tame and we had great difficulty in flushing the bird. On the wing its flight resembled that of the Common Sandpiper (*Actitis hypoleucos*) and the long white wing-bar was very noticeable.

I watched it again for over an hour on the morning of June 6th, 1948, this time in the company of Mr. H. H. S. Hayward and two other bird-watchers.

A. REAVLEY JENKINS.

[We learn from Mr. M. D. England that this bird was also observed by him and Mr. Guy B. Farrar on June 2nd.—EDS.]

LARGE NUMBERS OF SANDERLING IN STAFFORDSHIRE.

ON May 18th, 1948, I watched a flock of twelve Sanderling (*Crocethia alba*) at Cannock Reservoir, Staffordshire. Almost all stages of plumage from the grey of winter to the russet-brown of summer were represented. Twelve were again present on May 21st. By the 27th numbers had decreased to six, and two winter-plumaged individuals remained until June 1st.

In all cases the birds were accompanied by Dunlin (*Calidris alpina*) and could be separated by their slightly larger size, stocky build and black bill and legs.

The Handbook records parties up to six inland.

G. W. RAYNER.

[On the same day A. W. Boyd observed nine Sanderlings at Witton Flashes, Northwich, Cheshire, and on May 19th, twelve or thirteen were seen.—EDS.]

SOLITARY SANDPIPER IN NORFOLK.

FOR almost the whole of September, 1947, a Solitary Sandpiper (*Tringa solitaria*) frequented the Cley and Salthouse marshes, but especially the latter, and was seen by the undersigned observers, from whose notes the following particulars have been drawn up by the Editor.

The bird was first seen by the watcher, Mr. W. F. Bishop, on September 3rd. The most complete particulars were obtained by Mr. and Mrs. C. C. Rose and Miss C. K. James on September 6th, when it was watched for about 20 minutes in an excellent light at a range of about 10 to 15 yards, and the same observers had a briefer view on September 7th. A good view in sunlight with x12 binoculars at about 80 yards range was also obtained by T. H. Bell on September 29th, while G. W. Rayner had a somewhat brief but valuable view on September 12th, when the bird pitched quite close to him, displaying the under-wing and axillaries, as described below.

The build was noticeably slender and elegant and the size was noted as about that of a Wood-Sandpiper (*Tringa glareola*) (G.W.R., T.H.B.) or rather smaller than a Green Sandpiper (*T. ochropus*) (C.C.R., C.K.J.). The crown, nape and back were noted by C.C.R. and C.K.J. as dark olive-green patterned with white, the rump being dark like the back instead of white as in a Green Sandpiper. At longer range these parts appeared a dark mottled-brown to T.H.B. The throat and breast were buffish (with darker streaks: C.C.R., C.K.J.) and the rest of the under-parts white. The dark centre of the tail was seen by all the observers and the white lateral tail-feathers with dark bars were clearly seen by C.C.R. and C.K.J. The bill was black with whitish feathering at the base and the legs were noted as pale yellowish (T.H.B.) and by G.W.R. as "light", though C.C.R. noted them as appearing dark green.

The flight was fast and irregular and the bird landed abruptly (C.C.R., C.K.J.). On September 12th it was put up by G.W.R., when he was walking along the East Bank, and suddenly pitched again only some 10 to 15 yards away. On alighting it stretched its wings above its head, displaying their black underside and the axillaries strikingly barred with black and white. It stood momentarily thus before tripping out of sight and was not seen again.

When watched by T.H.B. it was on partially flooded ground with numerous islets of green vegetation and it spent its time feeding along the borders of these islets. When observed by C.C.R. and C.K.J. it was feeding at the edge of, and occasionally just within, reeds at the side of a pool.

The bird was also seen by Mrs. R. F. M. Meiklejohn and Miss D. Steinthal on September 8th, by the same observers and Col. Meiklejohn on the 11th, and independently on September 8th by Messrs. E. C. Arnold and R. H. Higgins. Particulars

supplied to *British Birds* show that less adequate views were obtained than those described above, but the distinctive features of the dark rump and centre of tail and light outer tail-feathers were observed and Mr. Arnold noted the call as one which was new to him and sounded like "peet-weet". None of the undersigned heard any call-note.

T. HEDLEY BELL, C. K. JAMES, G. W. RAYNER and C. C. ROSE.

REDSHANK BREEDING IN GLAMORGAN IN SEVENTEENTH CENTURY.

PROFESSOR RAVEN (4) has already pointed out that the bird noted by Ray in his *Third Itinerary* as breeding at Aberavon, Glamorgan, and carefully described by him, is clearly a Redshank (*Tringa totanus*), though wrongly conjectured by the editor of the *Memorials* (3) to be a Black-winged Stilt (*Himantopus himantopus*).

The report of the Redshank Enquiry (5), however, gives no certain record of breeding from the west side of Britain before 1842, so that Ray's record antedates all others by about 170 years, and in view of the probability of its being otherwise overlooked by ornithologists it seems desirable to draw attention to it. The colony must have died out completely, for by 1900 the Redshank in Glamorgan was described as a "common winter visitor. Has not been known to breed, though seen at Morfa as late as May" (1). Morfa is near Aberavon, and it is interesting that it was in this neighbourhood that G. C. S. Ingram and Col. H. M. Salmon (2) eventually proved breeding, the first modern record from the province of South Wales.

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BRUCE CAMPBELL.

SHARE OF MALE AND FEMALE LAPWING IN INCUBATION.

IN a note (*antea*, p. 28) J. C. Wickens mentions that in putting Lapwings (*Vanellus vanellus*) off some 30 nests he noticed that hens were in almost every case brooding and points out that this does not seem to conform with the statement in *The Handbook* that although the female takes the greater part in incubation the male also shares. My experience of this species has been different from that of Mr. Wickens, and the following notes may be of interest. I watched two nests on Shildon Bog near Corbridge,

Northumberland, in April and May, 1940, the first for some twelve hours on four days and the second for about six hours on three days. While I was present the hen at the first nest brooded for 8 hours 27 minutes and the cock for 2 hours 50 minutes; at the second nest the hen brooded for 2 hours 54 minutes and the cock 2 hours 53 minutes.

Owing to the relatively short time I was present on any one day it is not suggested that these figures give a true picture of the relative amounts of brooding by the different sexes, but they certainly show that at these nests the cocks took a considerable share in incubation. In view of the apparent difference in behaviour shown by the two sets of notes further observation would be interesting.

H. TULLY.

EVIDENCE OF YOUNG-CARRYING BY LAPWING.

THE attention of readers has been drawn (*antea*, Vol. xl, p. 384) to the paucity of recorded occurrences of young-carrying by Lapwings (*Vanellus vanellus*). It may therefore be of interest that in my notes for April 28th, 1944, I have the following entry:—

“At Kirkley, Northumberland, a Lapwing with a small chick was seen standing close to the road in a grass field. Desiring to ring the young bird, I approached them and, as I did so, saw the adult bird step across the chick, hold it between its legs and attempt to fly off with it over a wide ditch. After fluttering along for a few yards, the chick fell to the ground—probably released by the adult in its haste to escape at my close approach.”

JOHN ASH.

BLACK-WINGED STILTS IN ESSEX.

I have observed Black-winged Stilts (*Himantopus h. himantopus*) on three occasions recently on the St. Osyth marshes, Essex. A single bird was seen on November 17th and 27th, 1947, at Martello Tower Dyke, and two on April 12th, 1948.

REGINALD W. ARTHUR.

EARLY ARCTIC TERN IN SOMERSET.

ON April 11th, 1948, at Cheddar Reservoir, Somerset, an Arctic Tern (*Sterna macrura*) was positively identified by Messrs. R. P. Gait, W. E. Mayes, R. H. Poulding and myself.

It was observed in flight at a range of a few yards and the following details were noted:—Bill from tip to base deep red, long tail streamers, uniformly grey breast, throat whitish.

The bird alighted a short while on the water, only to continue once again a long flight period of feeding with sporadic diving. Finally, it settled upon a raft, not far distant, in good light, and, using a x 30 telescope, we were able to observe the very short legs. Under such excellent conditions the details already described were even more apparent.

Having witnessed a considerable migration of Arctic and Common Terns during the spring of 1947, we were quite familiar with the main differences of these birds.

The Handbook gives one earlier spring record for the Arctic Tern, April 7th, 1911, Northumberland. BERNARD KING.

SKY-LARK IMITATING WHIMBREL.—Mrs. S. Lloyd informs us that on June 25th, 1936, on the Prescelly Hills, Pembrokeshire, her husband and the late Charles Oldham heard a Sky-Lark (*Alauda a. arvensis*) persistently and clearly imitating the “tet-tet-tet-tet” call of the Whimbrel (*Numenius ph. phaeopus*). The bird was heard repeating this for about half-an-hour.

EARLY TREE-PIPIT IN SOMERSET.—Mr. E. G. Richards sends us details of a Tree-Pipit (*Anthus t. trivialis*) which he had under observation at Cothelstone, near Bishop's Lydeard, Somerset, on March 13th, 1948. The bird was identified both by plumage and by its song, which ended with the long-drawn “seear, seear” notes typical of this species. The earliest date given in *The Handbook* is March 17th.

EXTENDED SONG-PERIOD OF MARSH-TIT AND GOLDCREST.—Mr. P. F. Yeo reports that he heard the song of the Marsh-Tit (*Parus palustris dresseri*) in Dorset on September 24th and 25th, 1946, and on August 23rd, September 29th and 30th, and October 4th, 5th, and 7th, 1947. The song of the Goldcrest (*Regulus regulus anglorum*) was heard regularly from January 27th to February 15th, 1946, and from November 5th to 30th inclusive, 1947, in Dorset. These observations extend the song-periods as recorded in *The Handbook* chart for each species.

GREAT GREY SHRIKE IN RADNORSHIRE.—Mr. E. L. Thomas has sent a detailed description of a Great Grey Shrike (*Lanius excubitor*) which he saw between Llandrindod Wells and Penybont, Radnorshire, on September 2nd, 1947. The species is not often recorded in Wales.

WAXWINGS IN SUFFOLK, BERKSHIRE AND SURREY.—Mr. G. B. G. Benson reports a Waxwing (*Bombycilla g. garrulus*) which he observed at Southwold, Suffolk, on January 29th, 1948. Cadet P. R. Ardley reports a flock of approximately twenty Waxwings which he and two other observers saw at Pangbourne, Berks., on February 11th, 1948. In neither case were the birds seen subsequently, but Mr. J. O. Owens sends us details of thirty-six birds which he saw in three flocks of twelve each at Englefield Green, Surrey, on March 2nd, 1948. It may be remarked that Englefield Green and Pangbourne are only about 20 miles apart.

PARTLY DOMED NEST OF SPOTTED FLYCATCHER.—Mr. L. A. Cowcill has sent a description of an unusual nest of the Spotted Flycatcher (*Muscicapa s. striata*) found on June 19th, 1948, near Ulverston, Lancs. The nest, which contained 5 eggs, was domed

over one half, giving it the effect of a child's cradle or perambulator with the hood up. The dome was less solidly constructed than the lower part of the nest.

LATE SINGING OF WHITETHROAT.—With reference to a note by Mr. John Southern on this subject (*antea*, p. 50) Mr. Howard Bentham informs us that he heard a Whitethroat (*Sylvia c. communis*) in brief song on August 31st, 1947, at Aldwick, Sussex, and another in good and prolonged song at Tadworth, Surrey, on September 8th, 1947..

BITTERN IN IRELAND IN MAY.—Mr. J. S. Wightman informs us that he observed a Bittern (*Botaurus s. stellaris*) on the west coast of Donegal on May 6th, 1945. The bird was first seen standing in a shallow pool of a small salmon stream. It rose at his approach, and flapped around in a rather owl-like fashion, being mobbed all the while by a party of Jackdaws. It was also seen by several local sportsmen, one of whom was able to confirm the identification. Bitterns are of scarce and irregular occurrence in Ireland and a May date is unusual.

GREY PHALAROPE IN NOTTINGHAMSHIRE.—Mr. Lewis Spolton sends details of a Grey Phalarope (*Phalaropus fulicarius*) which he saw on the upper lake at Newstead Abbey, Nottinghamshire, on October 20th, 1947.

LITTLE STINT WINTERING IN DEVON.—Mr. R. G. Adams informs us that the Little Stint (*Calidris minuta*) recorded on p. 220 as seen on the Exe estuary in December and January was observed up to February 15th, 1948.

REVIEWS.

The Atlantic Islands. By Kenneth Williamson. (Collins, 1948). 16s. net.

Four years of Mr. K. Williamson's army service during the recent war were spent in the Faeroes, islands previously little known to those from our country. No other Englishman with his qualifications as writer, natural historian and folklore student has enjoyed his opportunities and the result is a book which Eric Linklater in a foreword justly describes as a masterpiece of its kind. There was for the author none of the boredom usually associated with a period in an isolated garrison and he came home with a Faeroese wife and a really intimate knowledge of the islands. His contributions to the study of folk-culture form a most valuable record and will appeal to the ornithologist just as much as to the student of land tenure and customs, for birds occupy a very important part in the economy of the islands. The chapter on bird-fowling and the manner in which the birds are prepared for food is one of great interest; the Puffin is by far the most valuable of the birds taken, but Guillemot, Fulmar and Gannet all afford an annual crop of some importance. Some of the folklore shows similarities to that of Britain although the actual species in question may be a different one; for example the Cheshire farmer knows that his spring oats must be sown before the Cuckoo's arrival, and this is paralleled by the Faeroe farmers' belief that muck-spreading should be completed before the coming of the White Wagtail.

Two of the most attractive chapters are "The Portrait of an Island," Mykines, most westerly of the group. This is the home of the greatest concentration of birds in the islands and it is little wonder that it evokes some of the author's most vivid writing. Here he was able to do a certain amount

of ringing and he later heard of a Gannet from Mykines at Agadir and a Kittiwake in Newfoundland. Other districts of a very different nature contain the Faeroe lakes, where on one occasion he had the satisfaction of proving for the first time that the Redshank was a breeding species in the Faeroes.

The full list of the birds, which is given as an Appendix, includes among those that breed there only one species, the Purple Sandpiper, which does not nest in the British Isles, but there are, of course, certain sub-specific forms such as may be found on any isolated island groups. Sixty-three species and sub-species have nested in the islands, regular birds of passage and winter residents number 80 and as many as 90 species, which may be regarded as casuals, have occurred. Most of all the Oyster-catcher is held in regard and its coming in spring is even more welcome than the return of the Swallow to an Englishman or of the Starling to a Finn. It is perhaps worth mentioning that an Oyster-catcher was therefore chosen as the shoulder-badge of the British troops which formed the occupying force. One small point: the title, "The Atlantic Islands," seems rather more applicable to a book on the Azores and may lead to some misunderstanding. A bibliography, a good index, photographs, drawings and maps complete a capital book. A.W.B.

Birds of a Valley. By W. R. Philipson. (Longmans, 1948). 10s. 6d. net.

Those who are familiar with the charming Lakeland valley running from the Kirkstone Pass to Patterdale and containing Brotherswater will realize that although the actual number of species of birds found there is strictly limited there is much to reward the observer, and in Mr. Philipson we have a real observer, who is at the same time a writer of considerable charm—a happy combination. The Buzzard has received his special attention: there are original notes on the difference between its method of feeding on carrion and that of the Raven, on its hovering when beetle-hunting, its nesting material, its attacks on man (a habit that achieved great notoriety in that district some forty years ago), its quarrels with Ravens and a Ring-Ouzel's quarrel with it. There are valuable notes on display of Chaffinch, in which the hen took the initiative, of Fieldfare and of Black-headed Gull, but all Mr. Philipson's notes show his power of close observation. He provides evidence of the Tawny Owl's habit of storing its prey in a knot-hole in a tree and returning for it; he has watched the Peregrine pass its prey to the hen bird in the air, the feeding of Snow-Buntings on the seed capsules of a rush in the hills, the passage of a big flock of Ring-Ouzels, and is familiar with Redstart and Pied Flycatcher, birds typical of the dales. One particularly interesting note tells of a Blackbird covering its eggs in the nest with loose grass; the author had not heard of behaviour of this kind by any other perching bird, but the present reviewer has watched a Mistle-Thrush pull material from the side of its nest and completely cover its eggs before flying away.

A chapter on migration contains less original material; one on roosting particularly of Rook and Redwing, which is based on two excellent articles in *British Birds* (*antea*, Vols. xxvii, pp. 66-71 and xxx, pp. 343-5), should encourage further investigation into this comparatively little-studied habit.

A.W.B.

LETTERS.

ROOKS IN N.E. FRANCE.

To the Editors of BRITISH BIRDS.

SIRS,—It would be interesting to know if the reports published in the popular Press earlier this year stating that large numbers of Rooks were making daily incursions to the Romney Marshes from the French coast, have ever been verified by a competent ornithologist. Unless rookeries in N.E. France have greatly increased in number and size since the first world war I think little credence can be given to these supposed visitations. From 1916 to 1918 I served with the R.A.F. in this part of France, and during that period one of my duties was to search for, and schedule, suitable sites for aerodromes some distance behind the lines. This was done as a precautionary measure in case

of a forced retreat. That some of these sites had to be used in the spring of 1918 is beside the point: what concerns us here is that this work afforded me an excellent opportunity for making a careful survey of all the rookeries in that corner of the country. In the sector bounded by the Somme on the south-west and a line drawn from Moreuil to Ypres on the south-east, with the Belgium frontier serving as my north-eastern limit, I found no more than nineteen rookeries, of which only one was situated in that part of the Pas de Calais department nearest to England. The largest rookeries in this area were at Autheux (400 nests); Humières (350 nests); le Pas d'Aultrie (240 nests) and Brunehautpré (165 nests). Most of the others were much smaller colonies.

It is true that in the winter months the Rook population was greatly augmented and every evening large flocks could be observed converging from all directions on Clairemaiais forest, situated some ten miles north-east of St. Omer. This roost was the largest I have ever seen.

Since most of the places mentioned above are considerably more than fifty miles from Romney Marsh it seems unlikely that the birds would undertake a daily flight which would involve at least three hours for the double journey.

COLLINGWOOD INGRAM.

TITS AND PEANUTS.

To the Editors of BRITISH BIRDS.

SIRS,—Our experiences in London with tits and peanuts seem to have been the exact opposite of E. J. M. Buxton's, *antea*, pp. 229-232. For many years up to April, 1940, we had regularly fed the tits on peanuts from November till April or May. The birds came freely into our room upstairs after them, and downstairs strings were hung from the balcony and a nut slide was fastened to a wall. We gave the nuts a pinch at the top to enable the tits to get their beaks in. Our whole street and many houses round were blighted, and we did not get back till the summer of 1946, when we were also fortunate in finding a tin of peanuts left. We started feeding other birds, but did not put out the slide with peanuts till we had seen some tits about, at the end of October. Unfortunately we had not enough nuts to hang up strings. The tits came to the peanuts at once, though there was other food about, and stayed with us the whole winter. We had gradually to leave more gaps between the nuts on the slide to make them last, but as long as there was a peanut in it there was a tit on it. We had a pair of Great Tits (*Parus major newtoni*), a pair of Blue Tits (*Parus cæruleus obscurus*) and sometimes a third, and a single Coal-Tit (*Parus ater britannicus*), an unusual visitor as we have only twice before had Coal-Tits here in 20 years. Before the war we used to feed from 6 to 14 Blue Tits according to the severity of the weather, but the bitter cold and snow of 1947 brought no increase of birds with the exception of Chaffinches of which we had one constant pair, and others when the weather was particularly bad.

In spite of the Blue Tits having brought out a family from a nesting-box on our house in June, 1947, in the winter of 1947-48 we were only visited occasionally by one pair of Blue Tits, and rarely, by a single Great Tit. Was this because we had no peanuts?

E. MACALISTER.

A SURVEY OF THE BIRDS OF STRANGFORD LOUGH.

To the Editors of BRITISH BIRDS.

SIRS,—Dr. J. A. Sinton and I are engaged in a systematic survey of the birds of Strangford Lough, Co. Down; we would be grateful if any of your readers who possess substantiated records of any birds occurring in the Strangford Lough area would make them available.

For the purposes of the survey we have delineated this area as the high water mark on the mainland shores, to include typical land birds occurring below this line and shore- and sea-birds occurring immediately beyond it.

We have already made one count of the breeding population and would be especially grateful for breeding records of former years.

C. DOUGLAS DEANE.

NATURAL HISTORY DIVISION, MUSEUM AND ART GALLERY, STRANMILLIS, BELFAST.

NOTICE TO CONTRIBUTORS.

British Birds accepts papers and notes dealing with original observations on the birds of the British Isles and Western Europe or, where appropriate, on birds of this area as observed in other parts of their range. Review articles on subjects of current ornithological interest will also be considered.

Contributors are asked to observe the following points, attention to which saves the waste of much editorial time on trivial alterations.

MSS. if not typed should be clearly written. Authors of papers, especially those containing systematic lists, lists of references, tables, etc., should consult previous papers on similar lines in *British Birds* as a guide to general presentation and set-out, including use of particular type, stops, and other conventions, such as date following the month (January 1st, etc., not 1st January), names of books and journals in italics, not inverted commas, and so on. Capital initial letters are to be used for proper names of definite species, but not for names used in a general sense or covering more than one species: thus "Great Tit," but "flocks of tits." [In systematic lists the whole name should be in capitals]. The scientific name (underlined in MS. to indicate italics) follows the English name in brackets without any intervening stop. Scientific nomenclature follows *The Handbook of British Birds* or H. F. Witherby's *Check-List of British Birds* based on this. When the subspecific name (if this is used) repeats the specific name the initial letter only should be used for the latter; otherwise the whole name should be given in full: thus "*Parus m. major*," but "*Parus major newtoni*."

Notes should be drawn up in as nearly as possible the exact form in which they will be printed, with signature in BLOCK CAPITALS, and the writer's address clearly written *on the same sheet*. If more than one note is submitted each should be *on a separate sheet* with signature and address repeated. Though suitable headings and scientific names can be added by the Editor, if necessary, they should be inserted by authors as far as possible. Communications should always be as concise as possible, though reasonable detail can be given where this is important. Notes or records of subsidiary importance may be abbreviated or otherwise modified by the Editor for inclusion in the section of "Short Notes." Maps or graphs must be *neatly* and *boldly* drawn in Indian ink, with due allowance for reduction when necessary.

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RECOVERY OF MARKED BIRDS.

COMMUNICATED BY

E. P. LEACH.

*Hon. Sec., Bird-Ringing Committee, British Trust for Ornithology.***Rook** (*Corvus f. frugilegus*).

No.	Ringed.	Recovered.
AG.640	Great Budworth (Ches.), 6.1.39, by A. W. Boyd.	Ashover (Derby), 30.4.48 [50 m. E.S.E.]

Starling (*Sturnus v. vulgaris*).

RINGED AS YOUNG.

X.4885	Langwathby (Cumb.), 27.5.47, by W. Howe.	Newry (Down), —.12.47.
XS.744	Felbridge (Sussex), 14.5.39, by London N.H.S.	Antwerp, Belgium, 27.8.39.

RINGED AS FULL-GROWN.

X.3138	Aultbea (Ross), 17.11.47, by P. A. Rayfield.	Trondheim, Norway, 20.5.48.
XB.349	Edinburgh, 28.2.48, by Midlothian O.C.	Nærland, (Jæren) Norway, 30.5.48.
X.2845	Cleveleys (Lancs.), 10.2.47, by R. M. Band.	Durham 23.3.48. [85 m. N.E.]
V.4384	Ditto 10.11.47	Mouth of R. Weser, Germany, 4.3.48.
V.7340	Ditto 21.12.47	Wittmund (Ostfriesland), Germany, 12.3.48.
V.4625	Flixton, Manchester, (Lancs.), 2.12.47, by A. E. Male.	North Somercotes (Lincs.), 19.3.48 [105 m. E.]
SK.993	Northallerton, (Yorks.), 25.2.47, by D. Ramsden.	Tarvin (Ches.), 26.11.47. [95 m. S.W.]
X.4581	Masham (Yorks.), 20.3.47, by R. Chislett.	Denton, Manchester (Lancs.), 2.12.47. [55 m. S.S.W.]
WP.21	York, 7.2.47, by R. Carrick	Gorleston (Norfolk), 19.1.48. [160 m. S.E.]
WP.81	Ditto 14.2.47	Karrebæk, (Sjælland), Den- mark, 9.9.47.
X.1415	Ditto 7.3.47	Borger (Drenthe), Holland, 3.5.47.
XT.624	Leeds (Yorks.), 18.2.47, by R. Carrick	Rhyl (Flints.), 20.1.48. [85 m. W.S.W.]
SL.56	Ditto 18.2.47	Drogheda (Louth), 6.1.48.
SL.45	Ditto 18.2.47	Rathfarnham (Dublin), 26.1.48
WP.122	Ditto 19.2.47	Danzig, Poland, 30.10.47.
X.5724	Douglas (I.O.M.), 14.2.48, by Cowin, Crellin and Ladds.	Ravenglass (Cumb.), 27.2.48
X.5723	Ditto 14.2.48	Formby (Lancs.), 10.4.48.
V.7291	Sale (Ches.), 18.1.48, by by J. Southern	Oswestry (Salop), 7.3.48. [50 m. S.W.]
V.7222	Ditto 7.12.47	Addlethorpe (Lincs.), 17.4.48. [107 m. E.]
V.7826	Ditto 6.3.48	Kuinre (Overijssel), Holland, 10.3.48.

No.	Ringed.	Recovered.
TS.491	Great Budworth (Ches.), 31.1.47, by A. W. Boyd.	Askern, Doncaster (Yorks.), —.4.47. [62 m. N.E.]
XD.618	Ditto 20.12.38	Klemensow, Poland, —.7.39. [55° 12' N. 27° 56' E.]
X.5824	Crewe (Ches.), 14.3.47, by F. J. Brown.	Radcliffe-on-Trent (Notts.), 22.1.48. [60 m. E.]
X.1970	Ditto 21.1.47	Grue, (Hedmarkfylke), S. Norway, 14.3.48.
X.2007	Ditto 14.2.47	Schwarmstedt (Hanover), Germany, 25.4.47.
X.3058	Mortimer (Berks.), 6.3.47, by Oxford O.S.	Marshwood (Dorset), 29.11.47. [90 m. S.W.]
X.1350	Iwerne Minster (Dorset), 21.3.47, by Clayesmore Sch.	Brynamman (Carms.), 2.4.48. [95 m. N.W.]
X.3310	Bodorgan, Anglesey, 22.2.47, by T. G. Walker.	Widnes (Lancs.), 31.12.47. [70 m. E.N.E.]
X.5303	Cardiff (Glam.), 6.3.47, by B. Campbell	Brixham (Devon), —.2.48 [77 m. S.S.W.]

Greenfinch (*Chloris ch. chloris*).

X.9703	Ware (Herts.), 25.2.48, ad., by .C. B. Wainwright	Loftus (N. Yorks.), 6.3.48. [190 m. N.N.W.]
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Chaffinch (*Fringilla cœlebs*).

A.7403	Spurn Bird. Obs. (Yorks.), 6.5.47, ad.	Balerno (Midlothian), 29.3.48. [205 m. N.W.]
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Tree-Pipit (*Anthus t. trivialis*).

A.7931	Padiham (Lancs.), 23.6.47, young, by J. J. Boon.	Where ringed, 10.5.48.
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Meadow-Pipit (*Anthus pratensis*).

TK.548	Skokholm Bird Obs. (Pem.), 1.8.46, juv.	Abadiano (Vizcaya), Spain, 29.10.47.
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Spotted Flycatcher (*Muscicapa s. striata*).

A.6096	I. of May Bird Obs., 14.9.47, ad.	Braga (Minho), Portugal, —.9.47.
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Willow-Warbler (*Phylloscopus t. trochilus*).

B.2453	Kilmarnock (Ayr), 12.6.47, young, by F. Walls.	Where ringed, 25.5.48
A.9339	Apperley Bridge (Yorks.), 23.7.47, ad., by R. F. Dickens.	Ditto 8.5.48; 11.6.48

Sedge-Warbler (*Acrocephalus schœnobænus*).

CX.726	Eton (Bucks.), 8.7.46, young, by Ash and Ridley.	Lightship, English Chan- nel, 9.5.48. [50° 42' N. 00° 27' E.]
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Whitethroat (*Sylvia c. communis*).

DD.792	Ware (Herts.), 6.8.46, ad., by C. B. Wainwright.	Where ringed, 4.8.47.
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No. Ringed. Recovered.

Song-Thrush (*Turdus e. ericetorum*).

RINGED AS YOUNG.

- OB.210 Avoch (Ross.), 7.5.47, by J. Lees. Headfort (Meath), 26.10.47
 V.3298 Muthill (Perth), 12.7.47, by Amulree (Perth), 19.4.48.
 A. Cross. [13 m. N.]
 X.7844 Seaham (Durham), 28.5.47, by Guisborough (Yorks.),
 R. Murray. 14.11.47. [25 m. S.S.E.]
 WT.295 Aylsham (Norfolk), 4.6.47, by West Buckland (Somerset), 2.11.47. [220 m.
 R. A. Richardson. S.W.]

RINGED AS FULL-GROWN.

- X.5003 Cleveleys (Lancs.), 18.3.47, by Preston (Lancs.), 28.4.48
 R. M. Band. [17 m. S.E.]
 SJ.959 Overton (Hants.), 6.3.47, by Ickleford (Herts),
 R. Elmes. 16.10.47 [65 m. N.E.]

Redwing (*Turdus m. musicus*).

- WR.854 Shrewsbury (Salop.), 10.2.47, Where ringed, 22.1.48
 by Shrewsbury Sch.

Blackbird (*Turdus m. merula*).

RINGED AS FULL-GROWN.

- TL.955 Alnmouth (Northumb.), 3.2.46, by Aalesund, Norway,
 H. Tully. 18.10.47.
 X.5313 Cardiff (Glam.), 6.3.47, by B. Ganarew (Herts), 17.3.48
 Campbell. [33 N.E.]

Wheatear (*Enanthe æ. ænanthe*).

- CX.209 Skokholm Bird Obs., (Pemb.), ad., River Oelfusá, S.W.
 28.4.46. Iceland, 23.5.48.

Nightingale (*Luscinia m. megarhyncha*).

- A.2945 Romsey (Hants.), 8.6.47, young, Where ringed, 2.6.48.
 by R. E. Williams.

Robin (*Erithacus rubecula*).

RINGED AS YOUNG.

- A.2511 Easington (Durham), 28.6.47, by Castle Howard (Yorks.),
 R. Murray. 20.11.47. [53 m. S.S.E.]

RINGED AS FULL-GROWN.

- B.2256 Spurn Bird Obs. (Yorks.), 31.10.47. Grimsby (Lincs.), 4.11.47
 [10 m. across Humber]
 B.2200 Ditto 26.10.47. New Passage, Pilning
 (Glos.), 25.2.48 [190 m.
 S.W.]

Swallow (*Hirundo r. rustica*).

RINGED AS FULL-GROWN.

- CW.333 Tallaght (Dublin), 26.6.46, by Where ringed, 25.4.47;
 F. W. Fox. 28.5.48.
 B.3351 Ditto 25.6.47. Ditto 27.5.48.

No.	<i>Ringed.</i>	<i>Recovered.</i>
Sand-Martin (<i>Riparia r. riparia</i>).		
CS.238	Rothley, (Leics.), 24.6.45, young, by R. Storer.	Where ringed, 4.8.47.
8 birds	Ditto, ad.	1946 Ditto 1947.

Great Spotted Woodpecker (*Dryobates major anglicus*).

236664	Ecclesall, Sheffield (Yorks.), 24.6.47, young, by R. H. Poulding.	Tean, Cheadle (Staffs.), 25.12.47. [35 S.W.]
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Cuckoo (*Cuculus c. canorus*).

213170	Spurn Bird Obs. (Yorks.), juv., 3.8.47.	Genoa, Italy, 11.9.47.
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Tawny Owl (*Strix aluco sylvatica*).

AD.2585	Briercliffe, Burnley, (Lancs.), 21.5.47, young, by B. Astin.	Garstang (Lancs.), 30.12.47. [30 m. W.]
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Barn-Owl (*Tyto a. alba*).

RINGED AS YOUNG.

AD.1118	Sedbergh (Yorks.), 1.8.45, by Sedbergh School.	Yealand, (Lancs.), 3.10.47 [15 m. S.W.]
AC.4216	Cawthorne, Barnsley (Yorks.), 24.8.47, by R. Carrick.	Alrewas (Staffs.), 19.2.48 [60 m. S.S.W.]

Peregrine Falcon (*Falco p. peregrinus*).

404257	Dent (West Yorks.), 15.7.40, young, by Sedbergh Sch.	Littondale (West Yorks.), —.10.47. [15 m. S.E.]
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Merlin (*Falco columbarius aesalon*).

329244	Hawthorn Moor (Yorks.), 22.6.47, young, by R. F. Dickens	Hinderwell (North Yorks.), —.1.48. [62 m. N.E.]
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Kestrel (*Falco t. tinnunculus*).

RINGED AS YOUNG.

322639	Sedbergh (Yorks.), 7.7.46, by Sedbergh Sch.	Rockcliffe - on - Eden, (Cumb.) 18.2.48. [48 m. N.N.W.]
318958	Clapham (Beds.), 19.7.47, by J. A. Miller.	Huy (Liège), Belgium, —.5.48.
329563	Harrow (Middlesex), 13.7.47, by London N.H.S.	St. Paul's Cray (Kent), 26.7.47 [23 m. S.E.]

Buzzard (*Buteo b. buteo*).

500725	Cumberland, 30.6.46, young, by R. H. Brown.	Newbiggin (Westmor.), —.11.47.
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Montagu's Harrier (*Circus pygargus*)

RINGED AS YOUNG.

306024	North Yorkshire, 6.7.47, by R. Chislett.	Kilnsea (East Yorks.), 18.10.47.
306039	Ditto 6.7.47.	Fafe, Portugal, —.10.47. [41° 27' N. 8° 11' W.]

No.	Ringed.	Recovered.
Hen-Harrier (<i>Circus c. cyaneus</i>).		
RINGED AS YOUNG.		
AD.4651	Orkney, 11.7.47, young, by G. R. Edwards.	Where ringed, 10.3.48
AD.4657	Ditto	14.7.47. Mey (Caithness) —.12.47.
AD.4652	Ditto	14.7.47. Dunbeath (Caithness), 6.3.48.
AD.1592	Ditto	20.7.47. Hawick (Roxburgh), 21.11.47. [260 m. S.]

Sparrow-Hawk (*Accipiter n. nisus*).

RINGED AS YOUNG.

331078	Farleigh (Surrey), 15.7.47, by K. R. Chandler.	Dorking (Surrey), 1.4.48 [14 m. S.W.]
328249	Limpsfield (Surrey), 10.7.46, by K. R. Chandler.	Ightham (Kent), 18.1.48. [13 m. E.]
331074	Edenbridge (Kent), 14.7.47, by K. R. Chandler.	Ardingly (Sussex), 4.3.48 [12 m. S.S.W.]

Heron (*Ardea c. cinerea*).

RINGED AS YOUNG.

500671	Eaton Socon (Beds.), 19.4.39, by C. S. Clarke.	Diélette (Manche), France —.9.39.
504854	Virginia Water, (Surrey), 1.6.47, by D. Goodwin.	Wokingham, (Berks.), 2.12.47. [13 m. W.]
504852	Ditto	1.6.47. R. Colne, Denham (Bucks.), 27.7.47 [14 m. N.N.E.]
504851	Ditto	1.6.47. Chesham (Bucks.), —.8.47 [21 m. N.]
504848	High Halstow (Kent), 24.5.47, by D. Goodwin.	Foulness (Essex), 18.11.47 [18 m. N.E.]
504850	Ditto	24.5.47. Polegate (Sussex), 10.1.48 [46 m. S.S.W.]
504846	Ditto	24.5.47. R. Otter, Sidmouth (Devon), 21.5.48. [175 m. W.S.W.]
500741	Ditto by London N.H.S.	26.5.47. Newport Pagnell (Bucks.), 16.1.48. [70 m. N.W.]

Teal (*Anas c. crecca*).

RINGED AS YOUNG.

328225	Smeale, I. of Man, 29.7.47, by Cowin, Crellin and Ladds.	Biesbosch (N. Brabant), Holland, 18.11.47.
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RINGED AS FULL-GROWN.

RINGS ISSUED TO WILDFOWL INQUIRY COMMITTEE

904971	Pembroke	28.11.47.	Dervock (Antrim), —.2.48.
904974	Ditto	28.11.47.	Lifford (Donegal), 7.2.48.
904367	Ditto	20.12.46.	Killinchy (Down), 15.10.47.
904689	Ditto	1.2.47.	Crosskeys (Cavan), 12.11.47.
903996	Ditto	7.12.46.	Belturbet (Cavan), 29.10.47.

<i>No.</i>	<i>Ringed.</i>	<i>Recovered.</i>
904923	Pembroke	12.II.47. Moone (Kildare), 28.2.48.
903828	Ditto	25.II.46. Wilkinstown, (Meath), —.II.47.
904026	Ditto	9.I2.46. Athlone, (Westmeath), 5.I0.47.
903052	Ditto	18.I2.45. L. Ennell (Westmeath), 20.I.48.
904087	Ditto	13.I2.46. Portarlington (Queen's Co.), 24.I.48.
904564	Ditto	30.I2.46. Ditto —.2.48.
904368	Ditto	20.I2.46. Sharavogue (King's Co.), 1.2.48.
903945	Ditto	4.I2.46. Fiddown (Kilkenny), 7.I.48.
904522	Ditto	26.I2.46. Carrick-on-Suir (Kil- kenny), 25.I.48.
904012	Ditto	8.I2.46. Wexford, 15.II.47.
904312	Ditto	19.I2.46. Tramore (Waterford), 9.II.47.
900660	Ditto	21.I2.39. Limerick, —.I2.45.
904892	Ditto	7.II.47. Muckinish (Limerick), 13.I2.47.
903617	Ditto	30.I.46. Ballynacally (Clare), 7.9.47.
904050	Ditto	10.I2.46. Claregalway (Galway), 7.I0.47.
904799	Ditto	26.I0.47. Ballinasloe (Galway), 5.I2.47.
903915	Ditto	2.I2.46. R. Shannon (Galway), —.2.48.
903414	Ditto	15.I.46. Woodlawn (Galway), 23.II.47.
904062	Ditto	12.I2.46. Alakylä, Finland, 26.8.47, [67° 20' N. 24° 55' E.]
901788	Ditto	19.I2.38. Pihlajavesi, Finland, 1943 [62° 20' N. 24° 20' E.]
904370	Ditto	20.I2.46. Sammatti, Finland, 21.9.47. [60° 20' N. 23° 50' E.]
904137	Ditto	16.I2.46. Sysmä, Finland, —.8.47, [61° 30' N. 25° 50' E.]
904117	Ditto	14.I2.46. Danzig, Poland, —.10.47.
903400	Ditto	15.I.46. Pagensand I., R. Elbe, Germany, 27.9.47.
904646	Ditto	16.I.47. Pajala (Norrbotten), Sweden, 21.8.47. [ca. 67° N. 23° E.]
903857	Ditto	26.II.46. Ribe (Jylland), Denmark, 24.8.47.
904595	Ditto	2.I.47. Lisberg Mose (Fyn), Denmark, 10.10.47.
903889	Ditto	29.II.46. Praestö Fjord (Sjælland), Denmark, 1.10.47.
904126	Ditto	15.I2.46. Lundby (Sjælland), Denmark, 20.II.47.
903490	Ditto	21.I.46. Frederikssund (Sjælland), Denmark, —.9.47.
904044	Ditto	10.I2.46. Guldborg (Falster), Denmark, 9.8.47.

No.	Ringed.	Recovered.
903897	Pembroke	29.11.46. Ameland, W. Fris. Is., 4.11.47.
903292	Ditto	8.1.46. Makkum (Friesland), Holland, 15.9.46.
902755	Ditto	22.11.45. Piaam (Friesland), Holland, 4.9.47.
904335	Ditto	20.12.46. Vollenhoven (Overijssel), Holland, 4.10.47.
904635	Ditto	15.1.47. 's Hertogenbosch (N. Brabant) Holland, 1.10.47.
903896	Ditto	29.11.46. Biesbosch (N. Brabant), Holland, 15.8.47.
903143	Ditto	24.12.45. Holland,—11 or—12.47.
903983	Ditto	7.12.46. Calais, France, 24.10.47.
904986	Ditto	30.11.47. Guise (Aisne), France, —3.48.
903541	Ditto	24.1.46. Plabennec (Finistère), France, 28.2.48.
903863	Ditto	26.11.46. Biganos (Gironde), France, 27.8.47.

Wigeon (*Anas penelope*).

RINGS ISSUED TO WILDFOWL INQUIRY COMMITTEE.

Or 4561	Pembroke	30.1.47. R. Medway (Kent), 28.11.47.
925387	Abbotsbury (Dorset), 2.2.47.	I. of Sheppey (Kent), —11.47.
902607	Ditto	30.1.47. Västervik (Småland), Sweden, 5.9.47.
925401	Ditto	2.2.47. Ditto 5.9.47.
904215	Slimbridge (Glos.), 3.10.47.	Venice, Italy, 24.2.48.

Pintail (*Anas a. acuta*).

RINGS ISSUED TO WILDFOWL INQUIRY COMMITTEE.

905280	Abbotsbury (Dorset)	24.2.47. Near where ringed, 28.12.47.
902604	Ditto	29.1.47. Portsmouth Area, (Hants.), 26.10.47.
902633	Ditto	1.2.47. Holland, —10.47.
905284	Ditto	25.2.47. Honfleur (Calvados), France, 21.2.48.

Shoveler (*Spatula clypeata*).

RINGED AS YOUNG.

AD.4830	The Ayre, I. of Man, 29.7.47, by Cowin, Crellin and Ladds.	Ballykinler (Down), 1.10.47.
AD.4832	Ditto	29.7.47. Rathnew (Wicklow), 13.9.47.
AD.4829	Ditto	29.7.47. Clonderlaw Bay (Clare), 19.11.47.

RINGED AS FULL-GROWN.

Or 4497	Pembroke	14.12.46. Ennis (Clare), 6.11.47.
Or 3846	Ditto	7.1.39. Lake Tämнар (Upsala), Sweden, —8.39.

No.	Ringed.	Recovered.
RINGS ISSUED TO WILDFOWL INQUIRY COMMITTEE.		
904219	Slimbridge (Glos.),	12.10.47. Wexford, 3.12.47.
904223	Ditto	13.10.47. Landrecies (Nord), France, 15.3.48.
904221	Ditto	12.10.47. Josselin (Morbihan), France, 6.12.47.
906346	Ditto	26.11.47. Marmande (Lot et Garonne), France, 18.3.48.

Cormorant (*Phalacrocorax c. carbo*).

RINGED AS YOUNG.

114039	Mochrum (Wigtown), by Lord Bute.	3.7.35. Near where ringed, 8.47.
119720	Ditto	15.7.37. Carsluith (Kirkcudbr.), 7.8.47. [14 m. E.]
127213	Ditto by Lord D. Stuart.	17.7.47. Cherbourg (Manche), France, 2.11.47.
127819	Ditto	17.7.47. Loctudy (Finistère), France, 24.1.48.
127840	Ditto	17.7.47. Ile Tudy (Finistère), 27.10.47.
127877	Ditto	17.7.47. River Odet (Finistère), —, 1.48.
127879	Ditto	17.7.47. Plouvenez-Lochrist (Finistère), 27.9.47.
127902	Ditto	17.7.47. Port Louis (Morbihan), France, 29.1.48.
127214	Ditto	17.7.47. River Vilaine (Morbihan), —, 10.47.
127827	Ditto	17.7.47. River Etel (Morbihan), 1.11.47.
127998	Maughold Hd., I. of Man, by Cowin, Crellin and Ladds.	31.7.47. Ferrol (Galicia), Spain, —, 10.47.
504404	Tenby (Pem.), 21.7.47, by Skok- holm Bird Obs.	Grève de Goulven (Finistère), France, 14.12.47.
126085	Ditto	18.7.47. L a r m o r - B a d e n (Morbihan), France, 29.12.47.
125928	Ditto	18.7.47. La Baule (Loire Infre.), France, 1.11.47
125940	Ditto	18.7.47. Ribadesella (Asturias), Spain, —, 12.47.
126097	Ditto	18.7.47. Ria de Arosa (Galicia), Spain, 2.1.48.
504409	Ditto	21.7.47. Ditto 19.1.48.
122569	Roundstone (Galway), 24.6.38, by S. Marchant.	Clifden (Galway), 11.4.48, [8m. N.]

Shag (*Phalacrocorax a. aristotelis*).

RINGED AS YOUNG.

3 birds	Maughold Hd., I. of Man, by Cowin, Crellin and Ladds.	Wigtownshire, Sept. and Oct. 1947.
2 birds	Ditto	27.7.47. Caernarvonshire, Jan. and Feb, 1948.

No.	Ringed.	Recovered.
127463	Holy Isle, N. Wales, 22.7.47, by C. P. Rawcliffe.	Barmouth (Merioneth), 19.1.48. [50m. S.S.E.]
127461	Ditto 22.7.47.	Aberystwyth (Cards.), 12.2.48. [66m. S.S.E.]
127042	Gt. Saltee Is. (Wexford), 26.5.47, by J. Weaving.	Castlehaven (Cork), 14.9.47. [120m. W.S.W.]
127043	Ditto 26.5.47.	Criccieth (Caerns.), 11.4.48.

Gannet (*Sula bassana*).

RINGED AS YOUNG.

123232	Hermaness, Shetland, 20.7.38, by M. Stewart.	Off C. Mondego, Portugal, 2.2.48.
505445	Bass Rock, 10.7.47, by Midlothian O.C.	Ondarroa (Vizcaya), Spain, 19.10.47.
505439	Ditto 10.7.47.	Off Pasajes (Guipuzcoa), Spain, 11.2.48.
126809	Ailsa Craig, 18.8.47, by A. Darlington.	Ondarroa (Vizcaya), Spain, 27.10.47.
504959	Ditto 17.8.47, by G. Hughes-Onslow.	Off C. Juby, Western Morocco, 20.1.48.
500907	Ditto 1.8.47, by "Wippletree."	Coast of Mauretania, 2.1.48. [21°38'N.]
503612	Grassholm, 11.7.46, by Skokholm Bird Obs.	North Sea, —.6.48. [53°34'N. 2°45'E.]
502445	Ditto 15.8.39.	Guéthary (B.P.), France, —.1.48.
503646	Ditto 11.7.46.	Povoa de Varzim (Douro), Portugal, —.8.47.
504581	Ditto 12.8.47.	Cezimbra (Estremadura), Portugal, Spring 1948.
504049	Ditto 8.7.46.	Cape Agua, Eastern Morocco, 16.12.47.
504185	Ditto 8.7.46.	Oran, Algeria, 16.5.48.
504531	Ditto 12.8.47.	Off Rio de Oro, W. Africa, —12.47. [ca. 28°N.]
504569	Ditto 12.8.47.	Coast of Mauretania, 10.2.48. [18°30'N.]

RINGED AS FULL-GROWN.

125892	Grassholm, 2.5.46, by Skokholm Bird Obs.	20m. S.W. Start Point (Devon), 2.4.48.
503750	Ditto 23.5.47.	Bay of Biscay, 4.4.48. [47°05'N. 5°10'W.]
503927	Ditto 3.7.47.	Ditto, 16.1.48. [45°40'N. 2°05'W.]
503984	Ditto 3.7.47.	Cap Ferret (Gironde), France, 24.1.48.
503689	Ditto 11.7.46.	Off Santoña (Santander), Spain, 26.1.48.

Manx Shearwater (*Puffinus p. puffinus*).

RINGED AS FULL-GROWN.

332243	Skomer (Pem.), 4.7.47, by R. H. Poulding	Ile de Sein (Finistère), France, 28.7.47.
AT.2543	Ditto 30.5.46, by Skokholm Bird Obs.	Lequeitio (Vizcaya), Spain, —.12.47.

No.	Ringed.	Recovered.
AT.9538	Skokholm Bird Obs.,	2.9.47. Shrivvenham (Berks.), 7.9.47. [150m. E.]
AT.8676	Ditto	23.7.47. Iles de Glénans (Finis- tère), France, 22.8.47.
AT.8858	Ditto	6.8.47. Quiberon (Morbihan), France, 13.8.47.
AT.6327	Ditto	9.5.47. Vieux Boucau (Landes), France, —.4.48.
AT.3430	Ditto	30.5.46. Capc Peñas (Asturias), Spain, —.9.47.
AT.3707	Ditto	23.6.46. Lundy, Bristol Channel, 30.4.48.
AT.7799	Ditto	11.7.47. Ditto 18.7.47.
AT.6177	Lundy Bird Obs., 18.7.47.	Skokholm Bird Obs., 11.4.48.

Wood-Pigeon (*Columba p. palumbus*).

RINGED AS YOUNG.

332883	Blagdon (Northumb.), 6.8.47, by Ash & Ridley.	Fatfield (Durham), 31.1.48. [16m. S.S.E.]
332334	Ditto 14.8.47.	Thirsk (Yorks.), 13.2.48. [60m. S.]
328909	Sherborne (Dorset), 7.7.47, by Sherborne Sch.	Winterbourne Abbas (Dorset), 7.2.48. [17m. S.]

Stock-Dove (*Columba cenas*).

329242	Apperley Bridge (Yorks.), 20.6.47, young, by R. F. Dickens.	Helperby (Yorks.), 20.2.48 [26m. N.E.]
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Turtle-Dove (*Streptopelia t. turtur*).

RINGED AS YOUNG.

RX.5632	Newmarket (Suffolk), 10.7.45, by A. Darlington.	Aguilar (Cordoba), Spain, 15.9.47.
311231	Hassocks (Sussex) 13.8.39, by J. C. Allen.	Lesparre (Gironde), France, 19.5.48.

Oystercatcher (*Hæmatopus ostralegus occidentalis*).

RINGED AS YOUNG.

328029	Udny (Aberdeen), 9.6.47, by G. F. Raeburn.	Newbiggin (Northumb.), 12.11.47. [150m. S.]
RW.3848	Killiecrankie (Perth), 15.6.47, by D. R. Mirams.	Westward Ho! (Devon), 23.11.47. [400m. S.]
320714	The Ayre, I. of Man, 12.6.47, by Cowin, Crellin & Ladds.	Aber (Caerns.), 6.3.48.
332313	Ditto 22.6.47.	Broadway (Wexford), —.11.47.
328952	Skokholm Bird Obs., 4.6.47.	Carentec (Finistère), France, 15.9.47.
329051	Ditto 18.6.47.	Pont l'Abbé (Finistère), —.12.47.

<i>No.</i>	<i>Ringed.</i>	<i>Recovered.</i>
Ringed Plover (<i>Charadrius h. hiaticula</i>).		
RINGED AS YOUNG.		
HN.590	Scolt Hd. (Norfolk), 27.6.39, by London N.H.S.	Grimsby (Lincs.), 23.1.40. [50m. N.W.]
X.9724	Donabate (Dublin), 8.6.47, by F. W. Fox.	Portland Harbour (Dorset), 19.9.47.

Lapwing (*Vanellus vanellus*).

RINGED AS YOUNG.

237968	Kilmarnock (Ayr), 1.6.47, by F. Walls.	Larne (Antrim), —.12.47.
240100	Rockcliffe Marsh (Cumb.), 4.6.47, by R. H. Brown.	Abbeyshrule (Longford), 2.1.48.
236658	Edenhall (Cumb.), 16.6.46, by W. Howe.	Co. Meath, 30.11.47.
238543	Langwathby (Cumb.), 1.6.47, by W. Howe.	Castlebar (Mayo), 8.12.47.
238528	Ditto	11.5.47. Lappi, Finland, 21.4.48. [61°05'N, 21°50'E.]
238553	Ditto	29.6.47. Sintra (Estremadura), Portugal, 25.11.47.
224140	Askham (Westmor.), 7.6.39, by Moon & Cooper.	Carcans (Gironde), France, —.3.47.
232247	Meathop (Westmor.), 22.6.41, by "Wippletree."	Where ringed, 25.4.48.
237293	Garstang (Lancs.), 19.7.47, by R. M. Band.	Spalding, (Lincs.), 20.2.48. [132m. S.E.]

Redshank (*Tringa totanus britannica*).

SM.816	Uldale (Cumb.), 28.6.47, young, by R. H. Brown.	Tamerton Foliot (Devon), 15.10.47. [300m. S.]
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Curlew (*Numenius a. arquata*).

AB.3190	Matterdale (Cumb.), 19.6.36, young, by the late H. J. Moon.	Ballycrissane (Galway), 12.1.48.
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Snipe (*Capella g. gallinago*).

°WS.194	Aultbea (Ross.), 22.7.47, young, by P. A. Rayfield.	Portrush (Antrim), 4.12.47.
X.6957	Skokholm Bird Obs., immature, 23.8.47.	East Budleigh (Devon), 16.9.47. [110m. S.E.]

Woodcock (*Scolopax rusticola*).

RINGED AS YOUNG.

240701	Heathfield (Sussex), 26.5.47, by C. Bergne-Coupland.	Hurst Green (Sussex), 9.11.47. [10m. N.E.]
230813	Barons Court (Tyrone), 1941, by Lord Hamilton.	Eksjö, (Småland), Sweden, 12.4.48.

Sandwich Tern (*Sterna s. sandvicensis*).

RINGED AS YOUNG.

239382	Isle of May Bird Obs., 25.7.47.	Dakar, Senegal, 7.12.47.
AN.5828	Strangford Lough (Down), 18.7.31, by J. Cunningham.	Addah, Gold Coast, 19.10.47.

No.	Ringed.	Recovered.
AN.2501	Roeburndale (Lancs.), 20.7.47, by R. M. Band.	Gibraltar, 21.1.48.
AN.1333	Skomer (Pem.), 6.7.47, by A. E. Billett.	Lady's Island Lake (Wexford), 1.11.47.

RINGED AS FULL-GROWN.

AC.1934	Skomer (Pem.), 29.4.46, by Skokholm Bird Obs.	Baracaldo (Vizcaya), Spain, 2.11.47.
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Great Black-backed Gull (*Larus marinus*).

RINGED AS YOUNG.

AC.9038	Skomer (Pem.), 12.6.46, by Skokholm Bird Obs.	Llannon (Carms.), winter 1946-47, [52m. E.]
406358	Ditto by A. E. Billett.	4.7.47. Ile Tudy (Finistère), France, 10.1.48.

Kittiwake (*Rissa t. tridactyla*).

RINGED AS YOUNG.

314348	Farne Is. (Northumb.), 1946, by the late Mrs Hodgkin.	Pool's I., Bonavista Bay, Newfoundland, 21.7.47.
331791	Ditto by T. R. Goddard.	13.7.47. Fogo district, Newfoundland, 14.11.47.
331810	Ditto	14.7.47. I. of Samsö, Denmark, 4.10.47.

Razorbill (*Alca torda britannica*).

RINGED AS YOUNG.

AD.4600	Skokholm (Pem.), 10.7.46, by R. H. Poulding.	Hovaag, S. Norway, 24.12.47.
AT.7292	Skokholm Bird Obs., 9.7.47.	Ardrossan (Ayr), 12.2.48, [270m. N.]
AT.7476	Ditto	26.7.47. Ayr, 5.4.48. [260m. N.]
AT.8485	Ditto	21.7.47. Curracloe (Wexford), —.9.47.
AT.8285	Ditto	18.7.47. Aran Is., Galway Bay, 16.2.48.
AT.4528	Ditto	10.7.46. Ploudalmézeau (Finistère), France, 13.11.47.
AT.7531	Ditto	10.7.47. Pasajes (Guipuzcoa), Spain, 23.11.47.

RINGED AS FULL-GROWN.

AT.7096	Skokholm Bird Obs., 29.6.47.	Weymouth (Dorset), 12.5.48. [140m. S.E.]
AT.7843	Ditto	14.7.47. Barfleur (Manche), France, 28.3.48.

Guillemot (*Uria aalge*).

AT.5196	Skomer (Pem.), 16.7.46, young, by Skokholm Bird Obs.	The Lizard (Cornwall), 27.8.47.
AC.1340	Skokholm Bird Obs., 10.7.37, ad.	Bude (Cornwall), —.4.48.
AB.8322	I. of May Bird Obs., 22.5.38, ad.	Where ringed, 19.2.48.

Puffin (*Fratercula arctica grabæ*).

AT.7295	Skokholm Bird Obs., 6.7.47, ad.	Rosslare (Wexford), 9.9.47.
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STUDIES OF SOME SPECIES RARELY PHOTOGRAPHED.

XVI. THE FLAMINGO.

Photographed by

W. E. HIGHAM, T. W. B. JEANS, H. A. PATRICK AND G. K. YEATES.

(Plates 61-69.)

WE particularly welcome the opportunity of publishing a selection of the remarkable series of photographs of Flamingos (*Phoenicopterus ruber*) taken by Mr. Yeates and his fellow photographers in the Camargue (Rhône delta) in May, 1948.

The Flamingos in the Camargue frequent the vast shallow saline lagoons or étangs near the coast. They constitute one of the chief avian features of the delta and have been observed by practically every ornithologist visiting the district for many years past. Until quite recently, however, evidence of their breeding has been extraordinarily fragmentary and unsatisfactory. In *Brit. Birds*, Vol. xviii, pp. 146-154, Mr. W. E. Glegg described the findings in May, 1924, of over 300 eggs, which were scattered over the mud of two islands without any attempt at nest building, except in a single case, and were all subsequently abandoned. In the *Ibis*, 1931, pp. 422-3, the same author summarized the evidence then available concerning the finding of eggs or nests, practically all of them relating to similarly abortive and half-hearted attempts at breeding, which failed owing to human disturbance, changes of water-level or other causes unknown. These facts naturally raised the question whether the Camargue could be regarded in any real sense as a breeding-place of Flamingos at all or whether the population was maintained by breeding elsewhere.

From the date mentioned until 1947 the situation as regards information generally available to ornithologists had not materially altered. In June of that year, as recorded in the *Ibis*, 1948, pp. 429-30, Messrs. Yeates, Higham and Patrick "discovered" a large breeding-colony in a remote locality, although it subsequently transpired that it had been known for some time to more than one local ornithologist, who had refrained from disclosing the facts in the interest of the birds, which are highly susceptible to disturbance.

The locality is evidently the one in which Flamingos most frequently breed, or attempt to breed, in the Camargue, and they are stated by the landowner's keeper to have done so from 1922 to 1924, and in 1936, 1939 and 1942, as well as in 1947. In a number of other years nesting had been attempted but not carried through successfully. In early June, 1947, when the colony was visited by Mr. Yeates and his companions, practically all the young had hatched and left the nests, and about 2,000 are estimated to have been fledged—a very successful season. In May, 1948, when the photographs were taken, a very large number of birds, estimated at approximately 3,000 pairs, was breeding. The lower

figure in plate 61 illustrates the surprising approachability of the birds when the young are hatched, in remarkable contrast to their sensitivity in the early stages of breeding when, as already noted, they desert with great readiness. The nests are formed of mud scraped up by the birds to form a mound with a slight depression on the top. According to most accounts they are usually made in shallow water and are raised—sometimes as much as 15 inches or more—until they are a few inches above water-level, although it frequently happens that the water subsequently drops, leaving them high and dry. The considerably elevated type of nest, as frequently described and figured, does not, however, appear to have been observed in Europe.

Abel Chapman, whose observations in Spain provided the first accurate account of the breeding of Flamingos (*Ibis*, 1884, pp. 66-99), describes the nests which he examined in the Marismas of the Guadalquivir as having "little or no height above the flat surface of the mud—some were raised an inch or two, a few might be five or six inches in height; but the majority were merely circular bulwarks of mud barely raised above the general level. . . . The general aspect of the plateau was not unlike a large table covered with plates." This account would evidently apply fairly well to conditions in the Camargue. Mr. Yeates (*loc. cit.*) has stated, with reference to 1947, that few of the nests were as much as a foot high and has expressed the opinion that although the water level had undoubtedly dropped since they were constructed many of them must have been on dry ground when built.

Nests can be well seen in several of the plates, and plate 69 shows two birds sitting, with the long legs doubled under them and the tarsal joints projecting beyond the tail, as first described from personal observation by Abel Chapman, who thus finally disposed of the legend originally promulgated by William Dampier (*New Voyage round the World*, 1697) that the incubating bird stands against the nest with the hind part of the body covering the eggs. Though the usual clutch is commonly stated to be two eggs the majority of nests in this colony contained one egg only (*cf.* especially plate 61). The season of 1948 was a highly successful one; it is estimated that about 3,000 pairs bred, and after these had hatched their young and gone, about 300 more pairs settled down and nested on the same site. In late May, 1948, when the photographs were taken, most of the eggs had hatched or were about to hatch, and in 1947 the main laying dates are stated to have been May 5th and 6th. It may be noted that the nesting season in both years was thus decidedly earlier than given by Chapman for Spain (late May and early June) and, as Yeates (*loc. cit.*) has observed, most of the records quoted by Glegg also "indicate late May or June, although he quotes large young as early as May 20th (1910) and eggs on May 14th (1912)." It is, however, well established that the Flamingo "is capable of considerable alteration of breeding-season to suit the water conditions".



UPPER.—FLAMINGOS IN THE CAMARGUE.

The birds have come out of the water in order to return to the nests after disturbance by the photographer.

(Photographed by W. E. Higham).

LOWER.—G. K. YEATES PHOTOGRAPHING FLAMINGOS.

(Photographed by T. B. W. Jeans).



FLAMINGOS IN NESTING COLONY, CAMARGUE, MAY, 1948.
(*Photographed by H. A. Patrick.*)



FLAMINGOS TENDING YOUNG, CAMARGUE, MAY, 1948.
(*Photographed by G. K. Yeates.*)



FLAMINGOS WITH NESTS AND YOUNG, CAMARGUE, MAY, 1948.

(Photographed by G. K. Yeates).



FLAMINGOS WITH NESTS AND YOUNG, CAMARGUE, MAY, 1948.

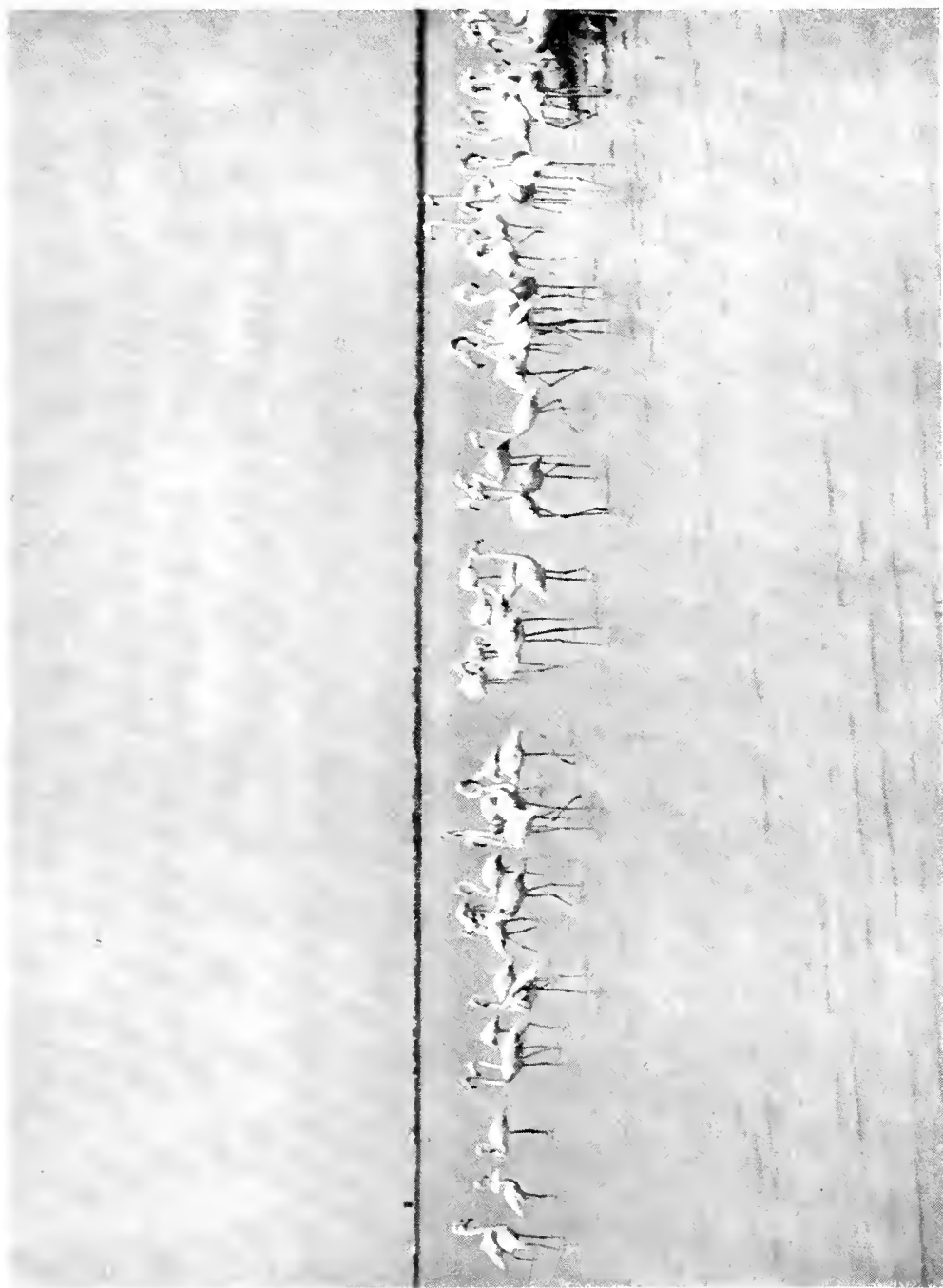
(Photographed by G. K. Yeates).



FLAMINGOS IN NESTING COLONY, CAMARGUE, MAY, 1948.

Many of the birds are incubating.

(*Photographed by G. K. Yeates*).



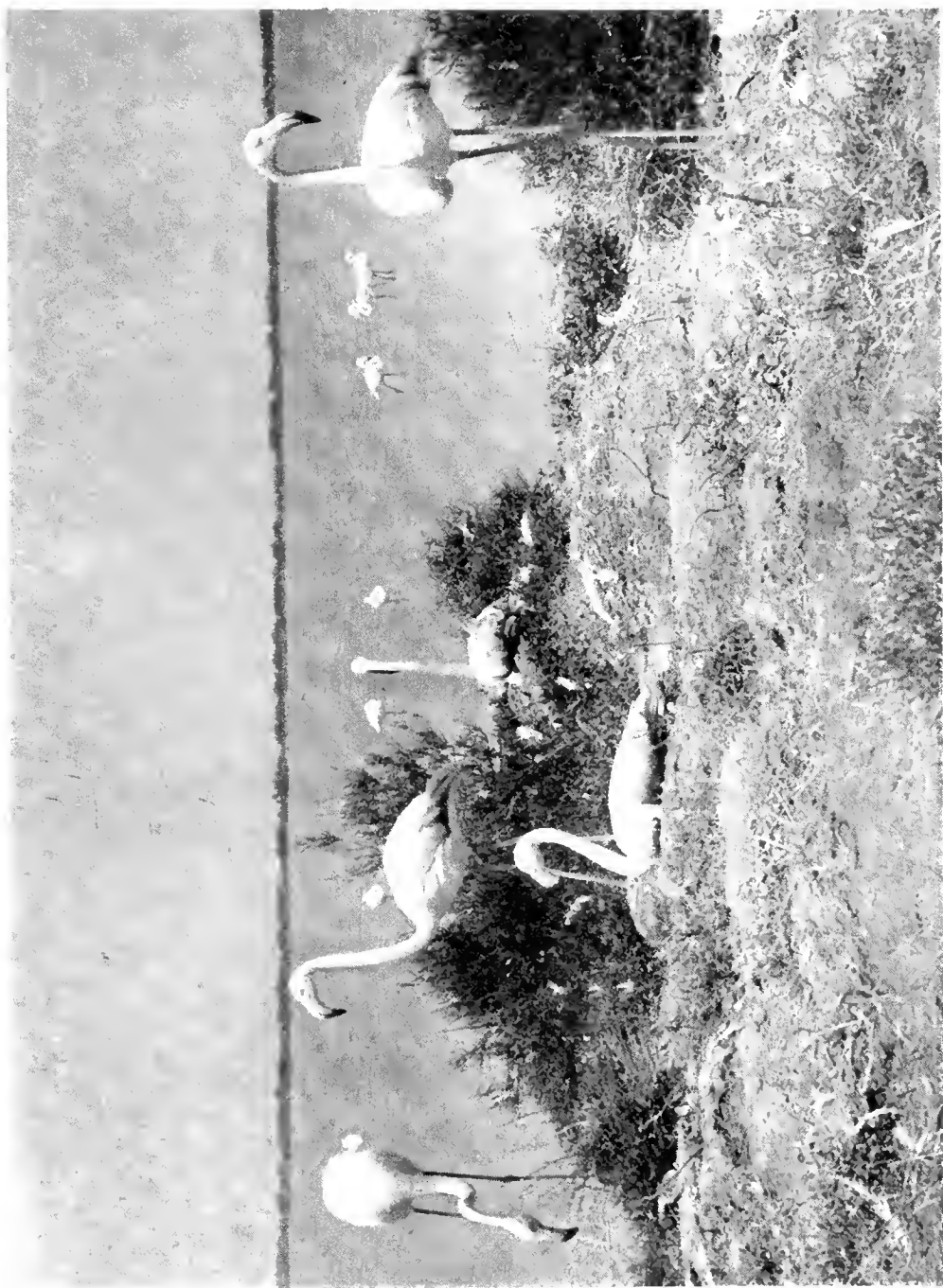
FLAMINGOS IN THE CAMARGUE, MAY, 1948.

A group of non-incubating birds in the water on the outskirts of the colony;

(*Photographed by W. E. Higham*).



FLAMINGOS AT NESTS, CAMARGUE, MAY, 1948.
(*Photographed by T. B. W. Jeans*).



FLAMINGOS AT NESTS, CAMARGUE, MAY, 1948.

Note the tarsal joints of the legs projecting beyond the tail in the sitting birds.

(Photographed by H. A. Patrick).



BOW FELL IN THE CENTRAL GROUP OF THE LAKE DISTRICT HILLS,
MARCH 22ND, 1939.

To illustrate the type of terrain frequented by nomadic flocks of Ravens (see pp. 299-294 and 386). When the photograph was taken a flock was in sight on the peak.

(*Photographed by R. A. H. Coombes*)

THE LITTLE RINGED PLOVER IN SOUTHERN ENGLAND IN 1948

BY

E. R. PARRINDER.

IN 1948 the Little Ringed Plover (*Charadrius dubius curonicus*) bred in Southern England for the fifth year in succession and there was a further extension of range. As in previous years the main concentration was within twenty miles around London, where about sixteen pairs spent the summer at ten localities, as compared with eleven to fourteen pairs at seven localities in 1947.

Outside the London Area, two pairs bred at the Tring Reservoirs, Hertfordshire, and three pairs in Suffolk. In addition birds were recorded in the breeding-season from Sussex, Surrey and Buckinghamshire. The species has twice before (1938 and 1944) nested at Tring when, as in 1948, the water level was low enough to provide suitable sites; it is remarkable that in each year one of the nests has been in exactly the same locality. The discovery of four pairs, three of which are known to have bred, in the coastal county of Suffolk is especially interesting, as presumably it represents a fresh colonization.

It seems likely that the spread will continue. The species has a wide range of breeding habitats abroad and the fact that, in England, it has bred so far mainly at gravel pits is presumably due to the large number of such pits, many excavated during the war, which provide suitable sites. Nevertheless, in the London Area, Little Ringed Plovers have also nested on dried mud and on rough stony soil on waste ground with pools near by, and have shown an interest in a typical Continental habitat, shingle banks on the edge of a river.

I am grateful to Mr. H. H. S. Hayward for permission to incorporate material collated by him and to the following observers who have contributed notes direct: L. P. Alder, K. Allsop, S. Austin, J. A. Bailey, T. L. Bartlett, A. Barwell, T. Bispham, H. A. Craw, J. M. Cullen, K. V. Elphinstone, J. Field, A. C. Fraser, V. R. Garrett, E. Gillham, D. Goodwin, Miss E. M. Goom, Miss N. Goom, P. J. Hayman, R. W. Hayman, G. A. Hebditch, P. A. D. Hollom, F. J. Holroyde, R. C. Homes, Sir Cyril Hurcomb, C. Hughes, C. M. James, M. C. Litton, P. Marler, D. J. May, K. Mitchell, S. A. Nelder, E. T. Nicholson, J. O. Owens, E. R. Parrinder, E. W. Pearce, E. G. Pedler, B. A. Richards, W. G. Teagle, C. M. Vesey, C. A. White, W. A. Wright.

SUSSEX.

On May 16th L. P. Alder and C. M. James satisfactorily identified a single Little Ringed Plover in a party of eleven Ringed Plovers and a Dunlin feeding on sandy ground. The next day two birds were present and were very excited, calling continuously; one was watched making a scrape on a small raised patch of

shingle. On May 23rd it was noticed that a few small portions of dead leaf had been added to the scrape, but the birds were both in another part of the area and were not seen to visit the scrape on this or subsequent visits. Two birds were seen on May 30th and one on June 6th. On June 13th only one was present; it displayed by crouching down and fanning its tail; when disturbed by Redshanks and Black-headed Gulls it carried out the "hostility" display flight. A single bird was seen on June 20th, but none was seen on subsequent visits.

KENT.

A close watch was kept at the gravel pit where Little Ringed Plovers first bred in 1947; a single bird was seen on May 16th, June 13th and July 25th, but not on seven other dates and there was no evidence of nesting (F.J.H.).

An immature bird was seen by the cement works pool at Cliffe on August 8th (E.G.).

SURREY.

On May 18th a Little Ringed Plover, clearly identified and absence of white wing-bar noted, was seen at Guildford Sewage Farm, in close proximity to two *hiaticula*. Between May 20th and 26th two Little Ringed Plovers were present and seemed attached to an area of rough stony ground bordered by coarse grass, but on the latter date this area was flooded in the course of the normal working of the farm. A single bird was seen on June 10th (G. A. Hebditch). This is the first record of the occurrence of the species in the county.

ESSEX.

LOCALITY "A": At least six pairs of Little Ringed Plovers frequented this site, the large area of gravel and shallow pools where four pairs were found breeding in 1947. The first bird was seen on April 3rd, an early date (W.A.W.), and on April 11th two pairs were displaying in distinct territories and another bird, apparently unmated, was also present (E.R.P.). Sixteen adults were counted on May 22nd (W.A.W.); it is possible that one or two of these were counted twice, but a careful check in early June confirmed the presence of six pairs for certain. A nest containing four eggs was found on June 5th and on the same day another pair was watched brooding three chicks; four other pairs showed breeding behaviour, but definite proof of nesting was not obtained (E.R.P.). The four eggs had hatched out by June 19th and all four chicks were seen (R.C.H., E.R.P.). The locality was not visited again until July 10th, when only one Little Ringed Plover could be found and none was seen on subsequent visits (W.A.W.). On July 10th one, possibly two, birds were observed at a place two miles from Locality "A" (E.T.N.).

LOCALITY "B": A Little Ringed Plover was seen at this locality, a gravel pit, on April 17th and again on April 19th, 25th and 26th (S.A., E.R.P., W.A.W.). The next visit was on

May 22nd, when two birds were seen, as also on June 3rd (S.A., J.A.N.). On June 6th and 8th three birds were present and showed anxiety (J.A.N., W.A.W.) and on June 21st two adults were seen with two to four young, all fledged (K.M.). The pit was last visited on August 10th, when one bird was seen (W.A.W.).

HERTFORDSHIRE.

LOCALITY "A": TRING RESERVOIRS (Contributed by H. H. S. Hayward): In 1948 two pairs of Little Ringed Plovers nested at Tring Reservoirs, where the low water level afforded a suitable breeding habitat for the species. The first pair took up their territory at Wilstone Reservoir at the beginning of May. Their nest when shown to me by Mr. J. N. Hobbs on May 15th had two eggs in it, and on the following day there were three. This appears to have been the complete clutch, and all hatched and were safely reared. One of the adults of this pair had only one leg.

The second pair nested at Startops End Reservoir in approximately the same spot as the sites of the 1938 and 1944 nests. Mr. Hobbs saw a single bird there on April 24th, and one was there on May 9th. A pair was present at the end of May, and on June 13th Mr. H. J. Evans showed me the nest, containing four eggs. It appears that no young were hatched and that the eggs were taken by an unknown person, but not until the birds had sat for several days beyond the normal period.

Steps to safeguard these two nests were taken by Mr. C. Double, the keeper at the reservoirs.

LOCALITY "B": Three Little Ringed Plovers were seen flying into this locality, a gravel pit, on June 11th. None was seen on June 21st, but one seen on July 6th flew right away on being flushed (W.A.W.).

MIDDLESEX.

LOCALITY "A": On April 26th a Little Ringed Plover was seen to come in to this pit and leave again after ten minutes. No birds were seen on subsequent visits and, as in 1947, the water level made it unsuitable for breeding (E.W.P.).

LOCALITY "B": Two Little Ringed Plovers were seen by last year's nesting site on April 9th (C.Hs.); none had been present on April 4th. Single birds were seen on April 21st and 25th, but none could be found during May. One was seen, however, on June 8th, and on June 13th two adults watched appeared anxious and, after a while, two, possibly three, chicks ran out from cover and were brooded by one of the adults (E.M.G., N.G.). The next day one adult was seen in a well-marked "injury-feigning" display (E.M.G.). No birds were seen on subsequent visits and the fate of the chicks is unknown.

LOCALITY "C": This locality is now unsuitable for breeding. Two were seen here on July 18th (T.B.) and September 4th (W.G.T.) and a juvenile, with a small party of Ringed Plovers and Dunlins, on September 5th (D.G.).

LOCALITY "D": Four birds frequented this locality, as in 1947. The first observation was on April 24th, when three were seen (C.Hs.). During May up to four birds were seen in various parts of the locality, which is much broken up by gravelly mounds between small flat areas with shallow pools, but no nest was found. On June 6th, however, two very anxious birds were seen on an area of flat gravel and an empty nest was found close by (B.A.R.), and on June 9th R.W.H. saw one of the adults brooding a very young chick. On June 26th a well-grown young bird was found crouching on the gravel; it did not move on being approached and was picked up and ringed—on being replaced on the ground it immediately flew off strongly! (E.R.P.). On July 16th an adult was seen with two juveniles, both flying well (E.G.P.) and on July 20th one, possibly two, adults were seen with one juvenile (J.M.C.).

LOCALITY "E": Little Ringed Plovers first bred at this locality in 1947, and in 1948 they were first noticed on April 24th, when three were watched and one was seen "scrape-making" (J.A.B.). A nest with four eggs was found on May 2nd, in almost exactly the same position as last year (E.R.P.). On May 8th one egg had disappeared, but the remaining three were being incubated. On May 15th all the eggs had gone, but the birds were watched mating (A.B., C.Hs.) and on May 17th a second (replacement) nest was found about fifteen feet from the original nest; it contained one egg. Two eggs were in the nest on May 19th, three on May 20th and four on May 21st (A.B.). On May 23rd four adults were present and three were seen on June 7th (E.G.P., T.L.B.). One egg hatched out at noon on June 13th (23 days after the completion of the clutch) and two more on June 14th—the fourth egg did not hatch (A.B. *et al.*). One of the adults was watched brooding the young on June 16th and all three were flying strongly on July 6th (A.B., R.W.H.). One bird was seen on July 10th, but none on subsequent dates.

LOCALITY "F": At this site two birds were seen on April 17th (C.Hb.) and four on April 18th (P.J.H.) and May 8th (P.A.D.H.). On May 13th E.G.P. found a nest with four eggs; subsequently one of the eggs disappeared, and on June 5th, 22 days after the discovery of the nest, it was found empty and apparently filled in (P.J.H.). The adults were seen next day, but showed no anxiety (E.G.P.). Three birds were seen on June 12th and two on other dates in June. On July 1st E.G.P. found another nest, evidently a replacement, with four eggs some fifty yards from the site of the first. On July 11th two newly hatched chicks were seen, one in the nest and the other close by; one of the eggs had not hatched and was later found to be infertile. One of the chicks was caught on July 17th and ringed (C.A.W.), but it is not known if they were safely fledged.

Known causes of disturbance at this site were small boys, cattle coming to drink, and Carrion Crows (*Corvus c. corone*).

On June 11th, when three adults were present, a crow was seen in pursuit of a Little Ringed Plover on the wing (E.G.P.).

LOCALITY "G": Little Ringed Plovers were first noted at this locality, a gravel pit close to "D", on April 13th, when four were found on a large flat area of shingle. On May 13th two out of three birds present were displaying, and on May 15th two were watched making scrapes (C.Hs.). The pit was not visited again until June 16th, when only one bird was seen, but its behaviour suggested the possibility of breeding (R.W.H.). A single bird was also seen on June 27th, but it showed no anxiety and flew away and did not return in thirty minutes (C.Hb., E.R.P.).

LOCALITY "H": This site was an entirely artificial area, about an acre in extent, of mud, shingle and shallow pools, sunk fifteen feet or so below the adjoining fields, and had been used as a temporary gravel pit for a building project near by. A Little Ringed Plover was heard, but not seen, on April 17th (C.Hb.), and a nest containing four eggs was found on the mud on May 30th (P.J.H., C.Hs.). On June 20th, after a period of heavy rain, three chicks were found dead in the nest: the adults were still about and called anxiously (C.Hs., C.A.W.). After a careful search, on June 27th, one of the adults was seen with a well-developed juvenile. Just before the young bird was noticed the adult suddenly began to call "pip-pip-pip" and ran forward for a few yards "injury-feigning". It then took flight, still calling, and the observers noticed a Little Owl (*Athene noctua vidalii*) flying low along the bank. The owl made a shallow dive at the Little Ringed Plover, which was then flying below it, before making off (C.Hb., E.R.P.). On July 17th, when the site was next visited, the pit was found to have been completely filled in and the ground levelled off—there was no sign of Little Ringed Plovers (C.Hb.).

LOCALITY "J": This gravel pit was first visited on May 17th, when two Little Ringed Plovers were seen, but did not appear to have a nest (E.G.P.). At the next visit, on June 20th, R.W.H. found a nest, with four eggs, on a flat gravel peninsula ten feet or so above the water's edge. Only one bird was seen on the next six visits; on each occasion it was extraordinarily tame and returned to the nest when the observer was in full view less than twenty yards away, and appeared quite unconcerned by the presence of fishermen at the foot of the bank below (E.R.P.). On July 12th (22 days after the nest was found) both birds were present and were very anxious—the chicks could be heard cheeping in the egg from several feet away. On July 15th, the nest was found to be empty, but there was no trace of the chicks and only one adult was seen, at some distance from the nest-site (E.R.P.).

OTHER LOCALITIES: In addition to the above, one to three Little Ringed Plovers were seen by the R. Colne between April 11th and May 18th and one on July 12th; one to two at Staines Reservoir on six dates between April 11th and June 12th; one at Perry Oaks Sewage Farm on May 30th, June 6th-7th, two on July 10th,

three (two adults and a young bird) between July 24th and August 9th, and one on August 19th and 22nd. There is also an interesting report by Mr. V. R. Garrett, who saw 12-15 waders in flight over the Kenwood Ponds on the morning of July 22nd. Mr. Garrett, who is unfamiliar with Little Ringed Plovers, was unable to obtain details other than that the upper plumage was a uniform drab-brown, without wing-bars, and the under-parts white. They flew away towards the Highgate Ponds.

BERKSHIRE.

At the site where nesting took place in 1947, a Little Ringed Plover was seen on March 28th—four weeks earlier than the previous earliest occurrence in the British Isles (D.J.M., J.O.O.). On May 22nd and 24th a pair was watched displaying and making scrapes—three scrapes were found on one dry strip of shingle. On May 28th only one bird was seen; it was watched making a scrape a few yards from the first ones, which were still empty. One was seen on June 1st (J.F.), three on June 10th and one to three on other dates in June (M.C.L.). On July 3rd, four were present (M.C.L.) and on July 6th two out of four watched were identified as juveniles, but they could fly strongly (C.M.V.) and it seems unlikely that they were reared at this site. Six (including three fully fledged immature birds) were seen on July 20th (J.F., J.O.O.), four on July 21st (M.C.L.) and one on July 23rd (J.F.).

BUCKINGHAMSHIRE.

The first occurrence of this species in Buckinghamshire was on April 11th, 1948, when two were seen and clearly identified at Slough Sewage Farm. The birds were not seen on subsequent visits (K.A., A.C.F., J.F., P.M.).

A single bird seen at a gravel pit on June 6th, went clear away when flushed (J.F.).

SUFFOLK.

LOCALITY "A": The first record of the Little Ringed Plover in Suffolk was obtained on May 11th, when two pairs were seen and clearly identified; from their behaviour they were thought to be breeding. Ringed Plovers (*Charadrius h. hiaticula*) were also breeding in the vicinity and were noticeably hostile to the smaller species—a Ringed Plover coming up to a Little Ringed Plover on the ground would raise its wings and run towards the smaller bird, driving it away (R. W. Hayman). No nest was found, but on June 6th, one of the pairs of Little Ringed Plovers was watched with two chicks, estimated to be about five days old. The two chicks were seen up to June 24th, when they were nearly free-flying and it seems reasonably certain that they were safely fledged. The second pair was seen up to June 13th, but there is no evidence that they nested (P. E. Brown, *Bird Notes*, Vol. xxiii, p. 149).

LOCALITY "B": A Little Ringed Plover was identified at this locality on May 21st, and a nest with four eggs was found six

days later. On June 16th three eggs were found to have hatched; the unhatched egg contained a dead chick. All three chicks were seen on June 23rd.

The nest of a second pair was found on June 9th. Three of the four eggs had hatched by June 22nd; the fourth egg was found to contain a dead chick, almost fully developed.

It is not known if the chicks of either pair reached the flight stage. (P. E. Brown, *ibid.*).

SUMMARY.

(1) At least 23 pairs of Little Ringed Plovers spent the summer at fifteen localities in Southern England; 14 pairs are known to have bred; 29-33 chicks are known to have hatched and of these 12-17 certainly reached the free-flying stage and others probably did so.

(2) The main concentration was again around London, but two pairs were found at each of two localities in Suffolk; two pairs bred at Tring, Herts (as in 1938 and 1944), and pairs showed breeding behaviour, but were not proved to have nested, in Sussex and Surrey.

(3) The earliest arrival date was March 28th; at ten sites where birds subsequently stayed the summer the average arrival date was April 15th. The previous earliest arrival date was April 25th, 1947.

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THE LITTLE RINGED PLOVER IN YORKSHIRE

BY

R. CHISLETT, K. DAWSON AND F. R. ALLISON.

THE Little Ringed Plover (*Charadrius dubius curonicus*) was first noted in Yorkshire in 1947; and breeding was proved in 1948, for the first time in the north of England. The site was an area of shale and water in the West Riding.

J. E. Beckerlegge, visiting the area on May 7th, 1947, saw two Ringed Plovers in flight which showed no wing-bars. On May 25th, 1947, A. G. Parsons noted an unusual call from a Ringed Plover, and no wing-bar as it flew past. It alighted on mud and was watched in detail as with "goose-stepping action" it approached another bird from behind. "Display flight" was seen, with action "very like a bat", during which "ki-ki-ki-ki-keeou" sounded frequently. K. Dawson also saw the birds on the 25th, and with F. R. Allison on the 26th, as well as on several later dates. Actions noted included "false brooding"; and "scrape ceremony", with breast on ground, raised fanned tail, and lowered wings, performed as late as August 6th by a single bird with no other near it. Three adults were together on June 16th. On July 20th, 23rd and 26th, a bird noisily escorted A. G. Parsons off its "territory". On July 27th both birds were noisy and demonstrative, the brighter and bolder one approaching to within 6 or 7 feet, when the yellow orbital ring was very plain. Breeding was suspected, but not proved; although from our experience in 1948 we think it was probably at least attempted. The two birds were last seen on August 20th, and B. Speake saw a bird on August 25th.

In 1948, after A. G. Parsons had left Yorkshire for Cornwall, an odd bird was first seen on May 8th by D. Leaver, who with K.D. and F.R.A., saw two on May 22nd; and on June 5th noted two birds feeding at one spot and one at another.

Having been advised of the presence of Little Ringed Plovers, R. Chislett paid a visit on June 8th, accompanied by W. B. Alexander, who was in Yorkshire in his capacity of President of the Yorkshire Naturalists' Union for 1948. The two men separated on arrival in the attempt to pick up the species. R. Chislett was fortunate to find a nest with four eggs before he had seen a bird. The scrape, lined with tiny angular fragments of stone, was in an old bed of tipped shale. The warm creamy eggs, had squiggly brown markings and spots, with some grey underlying markings; the general effect was "biscuit", which showed fairly conspicuously against the dark surrounding shale. A bird soon alighted near enough for the orbital ring to be seen. Later, the nest was duly inspected by W.B.A. and F.R.A., who had now arrived. The birds were still there on the 9th, but not on the 12th, and the eggs had gone. A single bird was seen on the 13th, and by D. Leaver on the 26th.

On July 18th, five weeks after the disappearance of the first clutch, K.D. and F.R.A. from a distance saw a bird fly to herbage-fringed mud where a chick joined it and was apparently fed before returning to the shelter of the herbage. A search failed to reveal the chick. The single adult was joined by two others. With one man hidden and the other using the telescope at a distance, a chick emerged again and was captured, together with a second. They were about three days old.

On July 20th, R.C., D.L. and E. Holmes watched the two birds at close quarters behaving exactly as if they had young, with much calling of "ik-ik-ik-ik-tooay" with variations, but could find none. The fact that F.R.A. renders this call as "pe-pe—pieuw" and "ti-ti—tiew" illustrates a well-known difficulty of apparent consonantal sounds in bird calls.

The adults were last seen, still behaving as if with young, on July 25th, by F.R.A. It may be the young fell victims to predators, or that after reaching the age of some ten days they were led some distance away, an action likely to have been accelerated by the frequent passage of workmen.

A small plover without a wing-bar was seen by Miss B. Singleton on May 9th, 1948, in an area of gravel pits in the East Riding; but a week later it could not be found.

NOTES.

A SUPPLEMENTARY NOTE ON THE FLOCKING OF RAVENS.

THESE notes on Ravens (*Corvus c. corax*) observed by me in flocks in the Lake District are intended to amplify some of the points referred to in my article on this subject (*antea*, pp. 290-294). The word "flock" had been used by others and seemed to be the best word to employ, but it must not be construed to mean a compact group of birds, such as Rooks or Jackdaws often form. In gatherings of Ravens on the hills during the daytime the birds are usually spread out over many hundred of yards of the mountain, each pair or unit acting independently of the rest, but all working along gradually in the same general direction. Frequently a dozen birds or so will draw together in the air and fly around each other, forming a spiral of circling birds, and at such times there is often much croaking and play. Frequently also a prominent rock or crag will attract a number of the birds to alight upon it at the same time, and then they will remain perched for a while close together but still noticeably in pairs. Normally, however, these gatherings of nomad Ravens seem to extend in twos and threes over half a mile or more, and as birds are nearly always working along both sides of the skyline it is only possible to count the number in sight at one time and to estimate the total. No doubt in the evening they gather more closely and roost together. I have observed these habits during the period between the end of February and the end of October, July and September being the only months when flocks were not seen. It seems more reasonable to suppose that the flock continues in November, December and January, and so is in existence throughout the year, than to suppose that these habits are broken for three months. One does not usually spend much time on the hills in November, December or January and I think that is the only reason why I have not as yet seen a flock of Ravens in that period. I have watched flocks on twelve occasions in March and April, the height of the breeding-season, and these flocks in spring are not composed of breeding pairs that have lost their eggs or young. I make that statement for several reasons, but will only mention one because it is a well-known fact; that is the very strong attachment that pairs of Ravens possess for the territories they have made their own, and which they defend vigorously in the breeding-season. Birds that have lost their first clutch can be seen in their territory every day and soon set about preparing a second nest in one of the alternate sites. The flocks seen in March and April are evidently non-breeding birds and I hold the view that these individuals continue to flock and roost together until a time comes in the next year, or following years, when they leave the flock in pairs and take up breeding territories of their own. When the photograph forming Plate 70 was taken on March 22nd, 1936, a flock of fourteen Ravens was in sight on the summit of Bow Fell.

R. A. H. COOMBES.

“INJURY-FEIGNING” OF TREE-PIPIT.

THE note on “injury-feigning” of a Tree-Pipit (*Anthus t. trivialis*) by Mr. K. R. Chandler published earlier this year (*antea*, p. 20), accompanied by an editorial note in which we expressed the opinion that “injury-feigning” in all the pipits is probably “more frequent than the meagre published references suggest”, drew letters from several observers confirming that this is so.

Mr. A. W. Bolt, of Hereford, writes that in his extensive experience “injury-feigning” of Tree-Pipits is very common. “If the bird is flushed very gently with just a slight tap on the vegetation surrounding the nest it will ‘feign injury’ almost every time, particularly if it has young. . . . Meadow-Pipits will ‘feign injury’ too, especially if they have young, but nothing like to the same extent as the Tree-Pipit does.” Mr. J. S. Reeve, of Leadenham, Lincolnshire, also writes that having spent very many hours for a great many seasons watching Tree-Pipits he considers the behaviour referred to quite normal in this species.

We think it can now be considered satisfactorily established that in spite of the “meagre published references” already referred to, “injury-feigning” is regular in the Tree-Pipit, and considerably less so, but not very rare, in the Meadow-Pipit (*A. pratensis*).

THE EDITORS.

DISPLAY OF MEADOW-PIPIT.

ON June 2nd, 1945, we had a male Meadow-Pipit (*Anthus pratensis*) under observation from 1700-1815 hrs. (G.M.T.).

This male, between intervals of singing in display-flight, uttered *tisp* calls rapidly repeated ten to twelve times with variable intervals of a few seconds between each sequence. After a few minutes the female approached, whereupon the *tisp* calls increased in tempo and changed into the character of a normal song-flight. The female settled on the grass some fifteen feet away; the male continued to sing, but also began to posture, shivering his wings and cocking up his tail very stiffly. The female was feeding and did not appear even to notice this display. After about thirty seconds the male flew straight at the female and a quick chase ensued consisting of three curious loops in the air at a height of three to five feet. Coition then took place on the ground, after which the male returned to his first stand and for over a minute stood facing the female (now feeding) with beak wide open.

About 40 minutes later the whole performance was repeated in almost exact detail.

PHILIP E. BROWN AND R. T. GOODYEAR.

DR. ENNION'S PAINTING OF THE MOUSTACHED WARBLER.

In the account of the extraordinary event of the breeding of a pair of Moustached Warblers (*Luscinola melanopogon*) near Cambridge in 1946 (*antea*, Vol. xl, pp. 98-104) reference was made to the coloured drawings made by Dr. E. A. R. Ennion immediately after observing the birds and it was stated that the

Editors hoped to publish a reproduction of one of these in a later number. After various delays, due mainly to printing difficulties, it is now possible to do this and the plate is issued as a frontispiece of the current volume. The drawing was originally prepared and coloured, with the assistance of rough sketches and full notes taken in the field, immediately after Dr. Ennion had watched the birds on August 9th, 1946. As mentioned in the original account, with reference to this drawing, "the striking coloration of the head is entirely unaltered, but it should be stated that the shades of colouring of mantle and tail-feathers have been modified somewhat to meet criticisms by Messrs. Hinde and Thom, who, it must be remembered, saw far more of the birds." The shade of brown of the upper-parts now shown can be accepted as approximately accurate, but it will be appreciated that *absolute* exactitude is not claimed. With the slight qualification indicated it can be said that the drawing represents the entirely independent testimony of an experienced observer who is also a skilled artist, in confirmation of the identification, and as such is of great value. It brings out very well the essential differences from the Sedge-Warbler (*Acrocephalus schænobænus*), especially the head pattern and coloration, which tend to be decidedly more striking in the living bird than in skins, and the darker, more rufous coloration of the back.

THE EDITORS.

LITTLE OWL AS PREY OF TAWNY OWL.

FURTHER to Mr. J. Staton's note on the above occurrence (*antea*, Vol. xl, p. 279), I should like to record a similar experience which seems to indicate that it may not be so uncommon as hitherto supposed. In April, 1947, I was examining the contents of the nest-hole of a Tawny Owl (*Strix aluco sylvatica*) in a tree which had been split open by lightning, near Sonning Common, Oxon. Among the debris of decomposing pellets, droppings and nest litter were the unmistakable upper and lower mandibles of a Little Owl (*Athene noctua vidalii*) together with portions of its skull in good condition. No other explanation of their presence there seems feasible than that they formed part of the Tawny Owl's meal.

DAVID GUNSTON.

[Mr. H. N. Southern, who is making a special study of Tawny Owls and whom we consulted on the subject of the above note, makes the following comment:—"These records of Tawny Owls taking Little Owls as prey, to which I can add one of my own of a pellet and remains found on March 23rd, 1947, at Wytham, Berks, suggest by their coincidence of dates that the hard weather in the early part of that year had an ill-effect upon the population of Little Owls throughout the country. At Wytham the breeding numbers of Little Owls in 1947 were very much reduced, and the Tawny Owls were presumably only able to catch this prey owing to their being in a semi-starving condition."—Eds.]

RELIEF DISPLAY OF MUTE SWAN.

ON May 9th, 1947, I was watching the nest of a Mute Swan (*Cygnus olor*), at Sandy Lodge, Herts.

The nest was situated on a pile of dead reeds in a small reed-bed in the River Colne. The male bird (I assumed this to be the male as the knob on the bill was much larger) was sitting on the nest, and the female was in the water by the nest. The female climbed out of the water on to the edge of the nest, and the male rose from the eggs and began poking about in the bottom of the nest, where I could see one egg and another covered with reeds. The two birds then faced each other and started to wave their heads up and down, snaking their necks so that their heads moved up above their bodies to the full extent of their necks and down again to the bottom of the nest. All this was accompanied by deep guttural snorts. The whole display lasted about one minute.

The male then attempted to re-settle on the eggs, but the female gently levered him off by pushing her head and neck under his body and shuffling forward. The male then retired and the female settled on the eggs. The male stood by the nest, and then started raking with his bill in the pile of dead reeds on which the nest was built. He picked up small pieces of dead reed and piled them before his mate, who, however, took no notice and turned her head on to her back as though resting. The male then entered the water and swam near the nest, until he eventually swam down the river. I did not see him return to the nest again that day.

MICHAEL RAYNER.

VITAL STATISTICS OF THE MOCHRUM CORMORANT COLONY.—*Correction.*—Lord David Stuart regrets an error in his paper with the above title (*antea*, p. 194), to which his attention has been drawn, and asks us to make the following correction. In Table I the mortality in the sixth year of life should read 25%, not 33.33%.

THE INLAND PASSAGE OF ARCTIC AND COMMON TERNS IN THE SPRING OF 1947.—Through an oversight records of five Arctic Terns (*Sterna macrura*) seen at Guildford Sewage Farm, Surrey, by Mr. C. R. Bird on April 25th and five on the 26th, were omitted from the Report on the above subject (*antea*, pp. 167-173). It may be noted that a quite small number of records additional to those received by us have appeared in the county reports for Surrey (*S.E. Bird Report*), Wiltshire and Nottinghamshire, but they do not affect the general picture in any way and need not be repeated here.

REVIEWS.

A Revised List of the Birds of Oxfordshire. By W. B. Alexander. Printed for the Oxford Ornithological Society, 1947. Price 2s.

It is possible that in recent years too much emphasis has been thrown on the differences between species and sub-species. They have been treated separately

and this has tended to create a wrong idea of the nature of a sub-species. Mr. Alexander gives a list of 251 species for Oxfordshire (compared with 241 recorded by Aplin in 1889) and refers appropriately to sub-species, such as those of Redpoll, Chaffinch, Song-Thrush etc., in the paragraph dealing with the species to which they belong. The order of the species and their specific names are taken from Peters' *Check List*, so far as it has been published. The use of this order, which begins with the divers and ends with the finches, will puzzle those who are accustomed to the *Handbook* or its German equivalent, and makes one realize the need for a world-wide agreement on classification and nomenclature, if ever the bewildered amateur is to have an easy mind.

Considering that Oxfordshire contains few lakes or reservoirs of size, the number of waterfowl, waders and sea-coast birds in this list is considerable. The Thames valley, with, in places, wide areas subject to flooding, such as Port Meadow, secondly the lake at Blenheim, and thirdly a seductive sewage-farm at Sandford, account for most of these. Among the less common birds that breed in the county are Marsh-Warbler, Woodlark, Wryneck, Hobby and Stone-Curlew, and the whole list provides evidence of the wide-spread interest taken in the birds of the county by members of the Society for whom it is published.

A.W.B.

Records of Buckinghamshire. Centenary number of the Architectural and Archæological Society for the County of Buckingham. Published for the Society by Hazel, Watson & Viney Ltd., pp. 80. Price 7s. 6d., plus 6d. postage—from the Museum, Church St., Aylesbury.

This well-produced journal contains two articles on birds: The Birds of Buckinghamshire by Miss K. Price and The Birds of the Tring Reservoirs by H. H. S. Hayward. Both are based on the excellent *Birds of Buckinghamshire and the Tring Reservoirs* by E. Hartert and F. C. R. Jourdain (1920), but the Reservoirs themselves are in Hertfordshire, although bordered by Bucks, and the two accounts do not therefore seriously overlap. Artificial boundaries between counties, which so often do not coincide with any natural division, to some extent retract from the value of county faunas; a truer picture is presented when districts with natural boundaries can be chosen.

The two authors deal differently with sub-species. Miss Price, following the method used in Mr. Alexander's list for the adjoining county of Oxfordshire, wisely makes clear their real place in a list of birds; thus, Rock and Water-Pipits, Pied and White Wagtails, Yellow and Blue-headed Wagtails are treated and numbered as three species and each couple is discussed in one paragraph; she is not, however, quite consistent, but writes of and numbers separately Mealy and Lesser Redpolls, both of them forms of *Carduelis flammea* (and incidentally mis-spells their generic name). Mr. Hayward on the other hand deals with the sub-species in separate paragraphs; some ornithologists, are beginning to think that this quite separate treatment is apt to lay too much emphasis on sub-specific differences, although the use of trinomials does, of course, make the standing of a sub-species perfectly clear.

The Bucks article, which brings up to date the 1920 article already referred to, owes much to the activities of the Oxford Ornithological Society, from whose records it has been compiled. 24 additions to the county list include no fewer than 15 from the Slough Sewage Farm—10 of them waders. The increase, as in many parts of England, of Tawny Owl, Tufted Duck, Pochard, Shoveler and Redshank is recorded, as is the decrease of Quail, Red-backed Shrike, Corncrake and Wryneck and of Long-eared Owl—the last not seen for 28 years. The birds of Bucks comprise an interesting list of species that breed or have bred and indicate the variety of habitat in the county: Cirl Bunting, Woodlark, Marsh-Warbler, Wheatear, Wryneck, Pied Flycatcher, Hobby and Stone-Curlew in addition to all the birds typical of the South Midlands. A "probable" Roseate Tern should have been put in square brackets.

The Tring article includes all the birds recorded from within a mile of the Reservoirs—a remarkable list of 196 species and sub-species. They are the classic locality where the Black-necked Grebe was first satisfactorily

proved to breed in England and the Little Ringed Plover nested in Britain for the first time. There are few duck, waders, terns, gulls and other coastal birds that have not occurred at Tring and the whole list has special value in pointing out (as do the visitors to the Slough Sewage Farm) how considerable must be the passage of waders and terns through our inland counties—knowledge which would be unobtainable if it were not that reservoirs, meres, and sewage farms provide suitable sites for food and rest.

A. W. B.

Severn Wildfowl Trust. Annual Report 1948. Price 5s.

This Trust, whose aims are both educational and scientific, has issued a very full report of its first year's working. It includes an excellent map of the "New Grounds", a report of the Council for 1947, an appeal for funds (with an apposite quotation from one of the Sherlock Holmes stories) and a bird report. This last describes in considerable detail and with good photographs the geese, which for 6 months of the year form the principal attraction of the place, and includes a long description of the first use of a rocket net for catching geese for ringing. The Lesser White-fronted Geese which were present for 2 months receive special notice. A list is given of other notable birds seen there, including many waders, Black Terns, a Marsh-Harrier, a Raven and a Hobby; a pair of the last-named successfully reared a brood locally. A decoy which had fallen into disuse is now working again and although it has not yet had a great deal of success we must hope that in the future it will provide data as valuable for the study of wildfowl migration as the Orierton Decoy.

Finally there is the collection of swans, geese and duck from all over the world, which is accommodated in rushy fields of 17 acres, where ponds have been dug and through which a stream runs. This collection contains many rarities and, although Snow Geese of three kinds reared young, the number of young birds that survived was rather disappointing. Photographs of some of these captive birds are given, but best of all the illustrations are Peter Scott's drawings of Emperor, Greater Snow and Ross's Snow goslings hatched in the enclosure..

There is a certain amount of repetition which might have been avoided.

A.W.B.

LETTERS.

CABINET COLOUR CHANGES IN BIRD SKINS AND THEIR BEARING ON RACIAL SEGREGATION.

To the Editors of BRITISH BIRDS.

SIRS,—While not seeking to prolong this correspondence unduly, for there is more than a grain of truth on either side, I feel that some reply is called for to Mr. Reginald Wagstaffe's letter (*antea*, pp. 319-320).

May I point out at once that I do not dispute for one moment that colour changes in cabinet specimens do occur. That is obvious to anyone with experience in these matters. Also I would like to applaud the intention to tackle this problem in the manner suggested by the Yorkshire Museum authorities. We all hope for, and expect, much from this investigation.

Despite all the additional information upon Robins and Song-Thrushes, contained in Mr. Wagstaffe's letter, all of which I feel is already well known, I am still of the firm opinion that such a cautious and careful worker as the late Mr. H. F. Witherby would never have been deceived into using, for the description in *The Handbook*, a "foxed" specimen of the Song-Thrush. Such skins have not only obviously changed colour, but the feathers also show a very obvious dulling, and loss of gloss. These signs of deterioration would never have been missed by H. F. Witherby and his co-workers. May I also say that I have never invested Mr. Witherby, his co-workers, nor anyone else for that matter, with an "unfailing perspicacity" nor do I claim such for myself; indeed I very much doubt whether anyone is possessed of such a faculty—perhaps such perfection is not even to be found in Yorkshire!

Until such time as the tinto-metric technique is perfected, and has been accepted as sound in practice, it is perhaps a little ingenuous to expect ornithologists to call a halt in comparative studies!

Finally, I would like to register a mild protest, for if personal knowledge of Mr. H. F. Witherby and the quality of his work as a systematist, quite apart from my own views on this subject, is to be discredited as factual evidence, then, and only then, can the last paragraph in Mr. Wagstaffe's letter be regarded as fair criticism and comment.

JAMES M. HARRISON.

IVY SEEDS IN NESTS OF SONG-THRUSH.

To the Editors of BRITISH BIRDS.

SIRS,—With reference to the correspondence on this subject (*antea* p. 288) and Col. Ryves's original note, which I unfortunately overlooked at the time, I have been surprised to find that experienced observers were in doubt as to whether Song-Thrushes and Blackbirds ever fed their young on ivy-berries. Possibly it is a more or less local habit, for in South Wales it is common. For instance some years ago in a certain small enclosed area (750' × 750') on the outskirts of Cardiff, harbouring at least six breeding pairs of each species, every early nest examined after the young had fledged contained a varying number of ivy seeds. Watching from a hide within 6-8 feet of several nests (1908-14) I have often seen the young fed with ivy berries as an *occasional* variation from a diet of worms and have also watched the young cast the seeds through their mouths. I have a photograph taken on April 9th, 1912, which shows a female Blackbird at the nest holding ivy berries in her bill, and see from my note-book that she immediately afterwards passed them on to the young, then exactly seven days old. I never saw berries fed to chicks *under* a week old. A large proportion of the trees in the enclosure referred to were draped in ivy.

GEOFFREY C. S. INGRAM.

SIRS,—With further reference to the notes on this subject (*antea*, pp. 151-2, 288) on April 7th, 1948, at Ferndown, near Wimborne, Dorset, I found the nest of a pair of Song-Thrushes (*Turdus e. ericetorum*) in a holly-bush; it contained three eggs and one young.

The nest appeared to be decorated on the outside with purplish-red beads which on closer examination proved to be the undigested seeds of ivy berries. There were more seeds on the outer side of the nest than on the inner facing the stem, and on subsequent visits to the nest during the next two days the sitting bird was nearly always facing outwards.

My inference at the time was that she had fed on, or been fed with, ivy berries and had subsequently disgorged the seeds over the edge of the nest. Unfortunately I could not visit the nest later to see whether the young too were fed on these berries. The nest was seen by my wife and six other observers.

J. W. LINGARD.

SIRS,—With reference to the letters on the above subject, on May 9th, 1948, I watched a Song-Thrush (*Turdus e. ericetorum*) at Hastings picking off several berries of ivy (*Hedera helix*) and flying off without eating them at least twice, suggesting that they were being taken to young rather than being used as food by the adult. The ground here at the time was very hard and dry, and I saw no worms taken for some time.

H. G. ATTLEE.

SIRS,—After reading Col. B. H. Ryves' note on this subject (*antea*, p. 151) I visited the four nests of Song-Thrushes (*Turdus e. ericetorum*) I had previously found during the spring of 1948. In the first, from which the young had flown at the end of March, I found 50-60 ivy-seeds lying in the bottom of the cup. The second nest of the same pair of birds did not hold any seeds. One of the other nests had been torn out and the other held two dead young birds that had died when only a few days old. I was already aware that Song-Thrushes almost certainly fed their young on ivy berries and have at least one note on the subject. On May 5th, 1944 I saw two adult birds carrying away berries in their beaks. Adult Song-Thrushes often eat berries themselves. My earliest note to that effect is dated February 17th, 1929.

R. G. ADAMS.

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BRITISH BIRDS

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A STUDY OF THE BIRD LIFE OF THE NORTH ATLANTIC

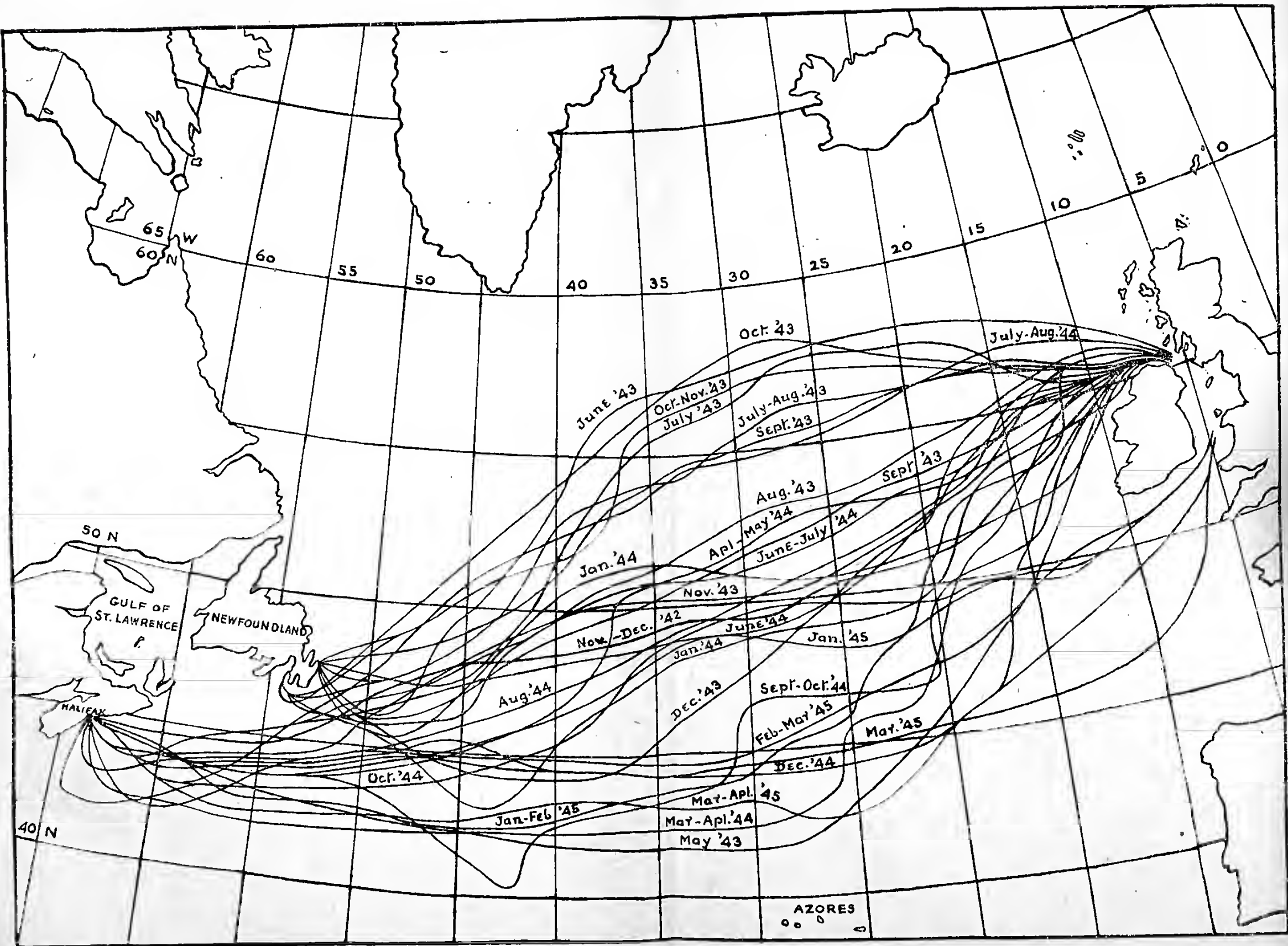
By M. NEAL RANKIN AND ERIC A. G. DUFFEY.

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SKETCH MAP SHOWING APPROXIMATE ROUTES TAKEN BY THE AUTHORS IN TWENTY-EIGHT TRANSECTS.

BRITISH BIRDS

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(Dept. of Zoology, University College, Leicester).



BRITISH BIRDS

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INTRODUCTION.

THE foundation of the study of the oceanic avifauna of the North Atlantic has been ably laid by V. C. Wynne-Edwards in his paper "On the Habits and Distribution of Birds on the North Atlantic" (1935). It is natural that any further contribution to this subject should be based on and compared largely with the research he has done and the ideas he has put forward. His paper has helped immeasurably in the arrangement and analysis of our own notes and observations.

Although we have endeavoured to follow up as many references as possible, our very limited time has not given us the opportunities we would have liked of examining every piece of relevant literature since Wynne-Edwards's publication. Consequently this paper consists almost entirely of our own work and we believe we have put in a record number of sea-days during a twelve-month period. Our total of 28 transects was mainly confined to 1943-44, but there is one winter crossing for 1942 and five for the first four months of 1945. From May 1943 to April 1945, either one or the other of us was at sea during every month but February 1944, and reference to the map and table (p. 2) will indicate the area covered and the number of days per month spent in it. (In addition, one of us made the double journey to Murmansk in May, 1945, from which a few notes are included).

The North Atlantic can be a disappointing ocean to one who only crosses it occasionally, and days will go by without a single bird being seen. This vast area of sea presents an ever-changing pattern of bird movements and it is impossible to grasp at any one time the whole of the myriad details that make up the composite picture. After some months on its sea-lanes one could not but feel that the true answer to any one question could only be known if it were

possible to cover the whole area in a matter of a few days. Its secrets can only be revealed after long and close familiarity, and every additional day adds a little more to what is already known.

TABLE.

Days spent by the authors at sea per month over a 12 month period.

Jan.	37
Feb.	23
Mar.	32
Apr.	26
May.	20
June	29
July	31
Aug.	30
Sep.	28
Oct.	30
Nov.	14
Dec.	27
Average	27.25

Bird-watching from a ship has its own peculiarities and for the most part it depends on the type of vessel in which one sails. In both our cases the vessels were small, usually permitting observation through 360 degrees.

During all our crossings we were in convoy and an average of 14 days was usual from one side to the other, though three weeks was not uncommon. Sometimes in bad weather progress was very slow, and on one occasion only 40 miles daily was covered for three days. Our usual practice at sea was to follow a zigzag course, thereby greatly increasing the area covered; this was a particular feature with one of us who was observing from an escort vessel covering a large section of the front of the convoy. In some respects the position in the centre of the convoy was disadvantageous, and the presence of many ships around us was probably a disturbing factor creating slightly unnatural conditions compared with those experienced by a single ship. It was noticed from the air, for instance, that shearwaters were more numerous beyond the outer screen of ships, and on several occasions this also applied to the Fulmar. On the other hand the Kittiwake was attracted, a greater density of birds being found within the convoy area than outside it. It is possible that several other species of ocean birds were also affected by the presence of a large number of ships, and for the most part the tendency was probably to keep outside them.

NOTES ON AERIAL OBSERVATION.

During many days on the ocean and around the coast of Ireland and Irish Sea it was possible to cover a large area of sea by air at a low enough height for accurate bird-watching. Under normal conditions it was as easy to assess the avifaunal situation from the ship as from the air, but often there would arise a particular point that needed clarifying, and in such a case an aerial trip was invaluable. Bad weather unfortunately often cancelled trips just when they were most needed, but on several occasions examination from the air only confirmed what had been seen from the ship.

A good idea of how the relationship between the two types of observation does not vary to a large extent except in special circumstances may be provided by an account of a fine mid-summer day in 1944. On June 12th, noon position $48^{\circ} 46'N.$ $35^{\circ} 52'W.$, the sum total of birds for several hours watch from the ship was 17 *Puffinus gravis* seen during a period of an hour. In early evening an aircraft took off for a patrol in calm, clear weather and covered an estimated 300 square miles at low height watching the sea closely all the time. In this huge area only 13 birds were counted, *Puffinus gravis* and *Fulmarus g. glacialis*.

On several occasions a small number of birds was seen from the ships and three or four times that number seen from airborne patrol, but this is understandable when the respective distances covered by ship and aircraft are compared.

Sometimes during the summer in a locality where birds were scarce, an aircraft would come across large patches of Gulf Weed dotted with Fulmars and shearwaters. When common, these two species were usually evenly distributed over the ocean, but when the birds were only present in large flocks it was because aerial observation was possible that their presence in large numbers was discovered. On September 27th, 1944, one flock of North Atlantic Shearwaters was seen from the ship feeding over a school of cetaceans, but from the air three such flocks were seen, numbering several hundreds of birds.

On a few occasions whilst crossing the Grand Banks an additional species was discovered from the air: the Fulmars recorded on the southern half of the Banks in January, 1945, were all seen from airborne patrol. Among the most valuable records derived from aerial observation were those of the short and intensive spring migration of terns in the Irish Sea and North Channel. The locality was small and easily covered; in a few hours one could see the situation from one side to another, leaving little out of the final picture. More on this subject can be found under "Arctic Tern." Small birds such as Storm-Petrels were only seen on rare occasions. Their small size and dark colour made them indistinguishable when much above 200 ft.

Other birds, due to size or presence of white on their plumage, were always noticed if flying, but if resting on the sea they were

most difficult to find and identification was usually impossible unless they were disturbed. The Kittiwake, always a keen follower of ships, was usually considerably more numerous in the vicinity of them than several miles away in the open sea. A convoy was often ringed by large numbers of these birds and even a single ship had a good complement. This would give the ship observer a wrong impression of the real numbers of birds per square mile, as for miles around there might be very few indeed.

Bird-watching at sea from the air has distinct advantages in ascertaining in a short time the species present, and their numbers and distribution over a large section of the ocean. It has severe limitations, however, in that all observation is done from a distance and is often difficult if weather conditions are not good. A ship is a far steadier platform and one enjoys a wider field of vision. Observation from an aircraft is often limited to a comparatively small arc and at low heights the object of interest is passed by in a matter of seconds.

DISCUSSION.

We accept Wynne-Edwards's three ecological divisions of Inshore, Offshore and Pelagic birds as the most convenient way of outlining the main habitats of the different species. Choice of food seems to be the governing factor except where migrations cause a species to change from one area to another. It is a noticeable characteristic in all the pelagic species we deal with that their trans-Atlantic distribution always runs in a S.W.-N.E. direction, on either one side or the other of the course of the Gulf Stream. This is not always sharply defined, but the density of population clearly shows the effect of the warm waters of this current. The peculiar properties of the current make it highly probable that the distribution and density of population of North Atlantic pelagic species vary to a considerable extent each year. It is known that the Gulf Stream, after meeting the Labrador current on the tail of the Banks, proceeds across the Atlantic more as a drift, and is variable with the winds. It can be expected that the demarcation line between cold and warm water species will vary too, and be less marked than where the current is swifter and warmer.

Puffinus diomedea, a warm water species, reaches a higher latitude on the east side, and apparently never crosses to the regions north of the Gulf Stream. *Puffinus gravis* has a marked preference for the colder waters, as indicated by the route taken as it migrates northward along the American coast, skirting the warm Sargasso Sea area and spreading N.E. once north of the Gulf Stream; but its southward migration is by no means so clearly defined. *Alle alle* is strictly a cold water bird in normal distribution (see map).

Kittiwakes (*Rissa tridactyla*) and Fulmars (*Fulmarus glacialis*) do not appear to have the same limitations, but even so the same effect is quite apparent. The Kittiwake is not found well into the mid-Atlantic Gulf Stream until several weeks after it is fully pelagic

farther north, and then this area is only tenanted for a short while. The Fulmar's range may be influenced by factors other than that of food, and, as a permanent resident of the North Atlantic, it presents a more puzzling problem in its oceanic movements. It is significant, however, that the mid-Atlantic gap is to a large extent vacated in the winter months by the Fulmar and, as pointed out in the account of the species, the region deserted corresponds to the northward movement of the warm mass of water from the Gulf Stream in that season.

We are indebted to D. Lack, H. P. Moon, E. M. Nicholson, B. W. Tucker, Kenneth Williamson and Prof. V. C. Wynne-Edwards for much helpful criticism and advice during the preparation of this paper. Prof. Wynne-Edwards has placed us particularly in his debt by giving us the benefit not only of his authoritative criticism and comments on the whole manuscript, but in some cases of unpublished information accumulated since his paper appeared. A few special comments by him appear as foot-notes.

GANNET—*Sula bassana* (Linn.).

This bird was only occasionally met with outside the true offshore waters on either side of the ocean, and was usually frequent east of 10° W. and occasionally west of 50° W. during the summer months. By October it was less frequent, and absent on the Canadian side from then until March, in which month several were seen on the 16th (1945) in 58° W. They were rarely met with during the winter months on the European side, though still inside the offshore zone. In May, 1945, they were not seen north of the latitude of the Faeroes.

Evidence of dispersal became apparent in September, when 11° - 12° W. was reached on the eastern side of the Atlantic; by October they had extended to the east side of the Grand Bank of Newfoundland and some were observed over 200 miles south of Cape Race. On March 8th, approaching S.W. Ireland, we crossed the continental edge about noon, and although the species had not been seen since leaving Canadian waters, it became numerous during the early afternoon and remained so for the rest of the trip.

Four Gannets were recorded outside the limits outlined above and are as follows:—

June 18th, 1943	...	$57^{\circ} 54'N.$	$14^{\circ} 36'W.$	...	4th summer bird
August 19th, 1943	...	$53^{\circ} 45'N.$	$24^{\circ} 50'W.$	...	" " "
October 15th, 1943	...	$57^{\circ} 46'N.$	$21^{\circ} 00'W.$	...	1st winter bird
March 5th, 1943	...	$50^{\circ} 48'N.$	$15^{\circ} 02'W.$	...	Adult

The first three were immature birds: one in the neighbourhood of Rockall, which Gannets are well known to frequent in summer (Fisher and Vevers, 1943; Harvie-Brown and Barrington, 1896); the second at least 600 miles from land; and the third 400 miles. These observations support the theory that immature birds wander farthest from the breeding grounds (Landsborough-Thomson, 1939).

STORM-PETREL.—*Hydrobates pelagicus* (Linn.).

This species was only definitely met with on one occasion during our transects. On June 9th, 1944, in 50°N. 25°W. they suddenly appeared around the ship and were common for 1½ hours. They did not follow in the ship's wake, but flew leisurely northwards. This date comes within the period at which Wynne-Edwards found them most common in the eastern Atlantic. There was one other record of a single small petrel too distant to identify seen on July 12th, 1943, just south of Rockall.

It is a puzzle that we did not come across this petrel more often, as it was expected that it would be seen in appreciable numbers. It was easily distinguished after much familiarity with Leach's Petrel, having a darker body and being conspicuously smaller.

LEACH'S FORK-TAILED PETREL.—*Oceanodroma l. leucorrhoa* (Vieill.).
Distribution.

Leach's Petrel was always to be found throughout the summer, from April to October, in a well defined area which reaches its easterly limit about the 37th meridian. The area traversed can be

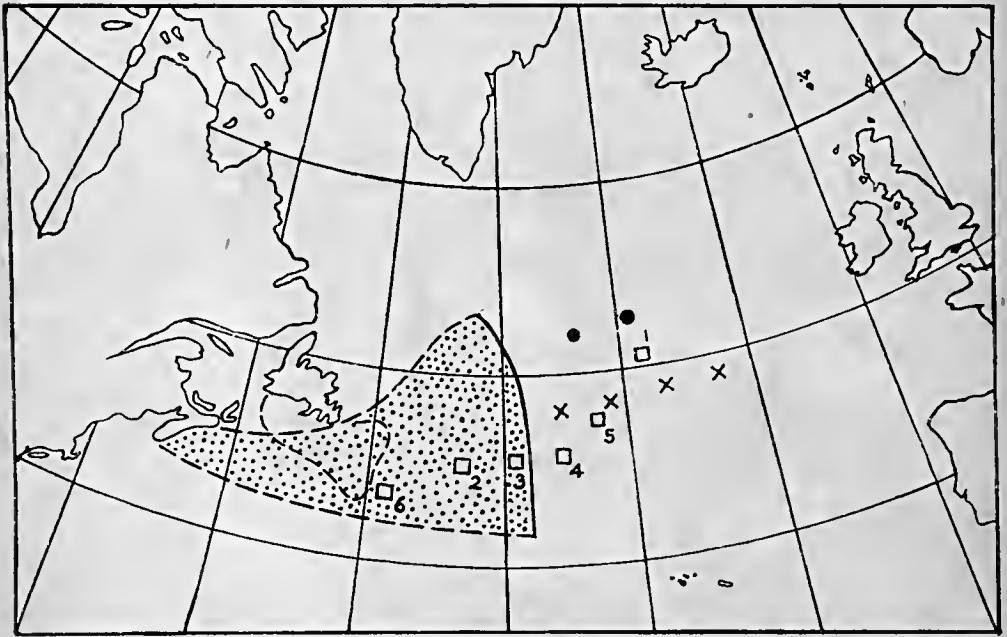


Fig. 1. SUMMER DISTRIBUTION OF LEACH'S FORK-TAILED PETREL

- Summer records outside range.
- Winter records.
- × Gale-driven birds.

seen to be roughly triangular in shape with its easterly limit as its base, but it is obvious that the northerly and southerly limits of the range of this species must lie beyond this area. The inhabited range therefore forms a belt some 500 miles wide adjacent to the American coast.

No attempt could be made to make a count of the numbers of this bird seen on our transects, for though many days passed with small totals of five to ten birds, there were several when the sea appeared to "creep" with them. Out of 22 days spent in the northern part of this area in the months of June to October, 1943, 18 produced records.

They were present in the southern part of the area illustrated in April and May and continued abundant throughout June to September. The first records in spring (April) were for small numbers almost in mid-ocean, though decidedly on the western side, 38°W . and 42°W . and again later in the month at 40°W ., all records between 42°N . and 48°N . By mid-May a larger section of the ocean was inhabited. Sailing east on the 42nd parallel, we found them common from 52°W . to 39°W ., and in early June they were found over the whole width of the area marked. When we were travelling east during the end of August they were no further out than the eastern edge of the Grand Banks, though further to the north in about the 50th parallel they stretched as far as 42°W . At this time also there were two records of this petrel being seen outside this area when two and three were seen on August 17th and 18th, 1943, in 34°W . and 30°W . respectively.

During September our records suggest that the main body of the oceanic population had moved away from the coast, the birds being much more common about 41°W . on the 51st parallel on the 10th of the month than on the Grand Banks. By October, however, the movement away from the coast was in full swing. Early in this month none was seen between the south tip of the Banks and Halifax, but a single bird was seen close to the Newfoundland coast on the 21st. A few days later, however, on the 29th in 49°N . 48°W . they were very common. These findings are in general agreement with those of Wynne-Edwards (1935), who found them "especially abundant" nearly 300 miles to the north in longitude 45°W . in the month of September. There is probably a gathering offshore before the general movements southwards.

During mid-October, 1944, between 45°N . and 48°N ., they were frequent each day from 45°W . to 22°W . and actually in greatest numbers from 35°W . to 26°W . This may be explained largely by the fact that we experienced a very severe five day gale that was also moving eastwards. This caused a displacement of approximately 600 miles from their normal range at that time of year, though the movement seaward is then well in progress.

Gross (1935), after an intensive study of the breeding cycle of this petrel on the islands in the Bay of Fundy, suggests that the autumn migration from that place does not start before November. After October our records are as follows:—five birds, November 25th in 50°N . 29°W . and several between December 7th and 10th between 43°W . and 31°W . show that the summer area has been vacated, indicating that migration had taken place. The few

records in November and December may be laggards of the main movement or evidence of the late migration suggested by Gross. Venables (1938) records four birds in $43^{\circ} 16'N.$, $49^{\circ} 16'W.$ on January 20th, 1937, and Wynne-Edwards (1935) mentions the species wintering in Greenland waters.

The absence of this and almost complete absence of any other petrel from the eastern half of the ocean is worthy of comment. A comparison of the respective numbers breeding on the eastern and western sides, reveals such small numbers in European waters that it is understandable that they may be overlooked in an extensive ocean.

Summary.

This petrel is a summer inhabitant of the area under observation, appearing in early April in mid-ocean, moving westwards in April and May and occupying a 500 mile wide belt adjacent to the American coast throughout the summer. During September the species appears to start its movement away from the coast and by the end of October, has vacated the area, though a few were seen in mid-ocean throughout November and December, presumably stragglers of the main migration.

Characteristics.

The plumage and habits of this petrel have been well described elsewhere. It is a most delightful bird to watch as it dances amongst the waves with what seem excessively large wings. It is worth emphasizing that the forked tail is difficult to see and therefore should not be relied on for identification. It was watched only twice feeding on refuse thrown overboard, but never actually seen following in the wake.

During our months at sea the behaviour of several species under severe weather conditions was occasionally seen, and it is interesting to note that this small bird was the only one to show actual distress and inability to combat the conditions imposed upon it. On October 19th, 1944, in mid-ocean, we experienced a gale of 80-90 knots windspeed. We did not expect to see any birds in such terrible weather, but somehow this species and three others had been caught in the worst part of a very large gale area. The Leach's Petrels endeavoured to use the ship's lee-side for shelter and it was remarkable to see such small birds often holding their own against such powerful forces. They kept very close to the sea, hugging the wave-hollows but all the time losing ground. As long as they were able to elude the main draught they could control their movements sufficiently well to avoid disaster, but every now and again, through fatigue or just bad luck some were caught by the gale and whisked away like feathers in a hurricane at an incredible rate. Several hit the ship's side, disintegrating in a puff of feathers.

Pomatorhine Skuas, Great and North Atlantic Shearwaters, which were also present, showed no apparent discomfort and at times were even flying well above the wave tops.

WILSON'S PETREL—*Oceanites oceanicus* (Kuhl).

As with *Hydrobates pelagicus*, Wilson's Petrel was met with on only one occasion and then during the season when it is most abundant offshore. On August 19th, 1944, we left Halifax eastbound, and for two hours this bird was common as we steamed seawards. The weak gentle flight is very characteristic and the more conspicuous white rump, as compared with Leach's Petrel, a good distinguishing mark. The square-cut tail is a reliable feature, but only evident at close quarters.*

FRIGATE-PETREL—*Pelagodroma marina hypoleuca* (Webb *et al.*).

On October 16th and 17th, 1944, from 45°W. to 37°W. at 45°N. to 46°N. this species was seen in small numbers round the ship, being considerably more numerous on the first day. Its flight was typically that of a petrel, quick and dainty but nevertheless strong and confident. Little attention was paid to the ship's wake, but occasionally the same bird would circle round two or three times near the ship's side before moving on. About the size of a Leach's Petrel, this species was absolutely unmistakable in its plumage colouring, a pale-brown above with light under-parts. The white cheeks with a dark patch over the ear were also clearly seen. For two days before they appeared, we had been moving along in the centre of a vast depression, and on the 16th, when they were first seen, the gale was beginning to overtake us and the wind was increasing in velocity. Next day, the 17th, when only a few were seen, the wind was blowing at gale force and a heavy sea was running. Only glimpses were caught of the birds, but they seemed well able to hold their own. For three days afterwards we experienced an extremely severe storm.

Murphy (1936) discusses the effect of hurricanes on birds, and his account would explain how these Frigate-Petrels were transported so far from their home waters. Many storms originate off the west coast of North Africa, in the area which includes the breeding haunts of *P. m. hypoleuca*, and sweeping across the Atlantic turn north-east off the American coast, whilst some may even reach the British Isles. He suggests that many seabirds are carried along in the calm centre of a disturbance, as was the case with the birds seen by us, and are unable to free themselves because of strong peripheral winds.

The facts in our case fit in with this account very easily and it seems reasonable to suggest that the only way this species could have wandered so far out of its range was by the assistance of some powerful force over which they had no control. Presuming these

* The northern limit of Wilson's Petrel evidently varies considerably from year to year. For example, in July, 1937, I observed them north to the Straits of Belle Isle; and in May, 1945, found them in fair numbers north of the Azores, east to 46°N. 18°W., along almost the same course which the authors followed in May, 1943.—V.C. WYNNE-EDWARDS.

birds had been forced such a long distance from their haunts, it was amazing that they should not have been more exhausted. They certainly showed no signs of physical weakness.

This is believed to be a new record for the temperate North Atlantic. A second occurrence is recorded by H. G. Alexander on August 25th, 1945, in $41^{\circ} 44' N. 51^{\circ} 58' W.$ (Nicholson, 1946). The subspecies has occurred as a very rare vagrant in both Europe and America.

MANX SHEARWATER—*Puffinus p. puffinus* (Brünn.).

This species was seldom recorded beyond $20^{\circ} W.$ and indeed was scarce beyond the offshore regions of the British Isles. In the Rockall Bank area about 200 were seen on four different days between July and September, 1943, but this area is known to be frequented (Harvie-Brown and Barrington, 1896) and the attraction is easily explained by the probably abundant supply of food. To the west of the above meridian we record five single examples:—

May 11th, 1944	...	...	$55^{\circ} N. 23^{\circ} W.$
July 11th, 1943	...	...	$56^{\circ} 20' N. 19^{\circ} 36' W.$
July 28th, 1944	...	...	$56\frac{1}{2}^{\circ} N. 18\frac{1}{2}^{\circ} W.$
August 19th, 1943	...	...	$53^{\circ} 45' N. 24^{\circ} 50' W.$
September 5th, 1943	...	...	$56^{\circ} N. 23^{\circ} 40' W.$

Further to the south in the third week of May, 1943, a few were seen each day from just north of the Azores ($43^{\circ} N.$) to the offshore region of the west of Ireland.

Apart from a few birds seen very early in September, no more were recorded during the winter months, excepting one individual off North Ireland on October 12th, 1943.

CAPE VERDE LITTLE SHEARWATER—*Puffinus assimilis boydi* Math.
OR

AUDUBON'S SHEARWATER—*P. l'h. l'herminieri* Less.

Two records of a small shearwater were made; the first on August 15th, 1943, in $49^{\circ} 53' N. 38^{\circ} 43' W.$ and the second on December 8th, 1943, in $44^{\circ} 07' N. 38^{\circ} 43' W.$ It was the size of the bird which was the outstanding feature on both occasions. Outwardly they appeared similar to *P. puffinus*, but the size, as already remarked, and secondly a noticeably quicker wing-beat and less gliding flight placed them among the little shearwaters. The second bird was closely compared with a Leach's Petrel and noticed to be a "little larger" than the petrel. On the second occasion we noted that "the under tail-coverts were dark," thus positively identifying it as one of the above.

GREAT SHEARWATER—*Puffinus gravis* (O'Reilly).

The distribution and migrations of this species have been discussed and explained by Wynne-Edwards (1935), but although our experiences support his account in most of the main details there are certain points on which we differ. The movements of

this species probably vary to some extent from year to year and this may account for a small part of the differences in dates and distribution.

Distribution.

The northward migration of *P. gravis* is not a gradual filling in of its winter range, but seems to be a movement of considerable rapidity. Wynne-Edwards (1935, Fig. 5) shows the northern limit on May 25th to include the Nova Scotian and Newfoundland Banks, extending to 52°N. at 30°W. If this is so the numbers must be very small.*

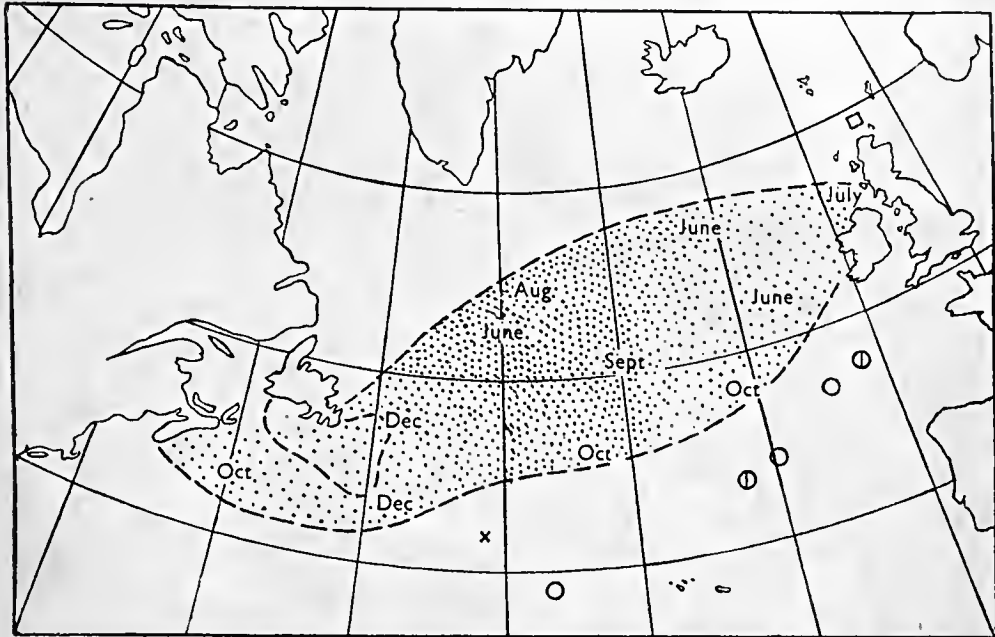


Fig. 2. DISTRIBUTION OF THE GREAT SHEARWATER

Density of dots indicates frequency of birds.

- | | | |
|-----------------------|---------|----------------|
| □ Sept. (Williamson). | ○ July | } (Philipson). |
| x March (Venables). | ⊖ Sept. | |

During three trips through this area in early April and the first two weeks in May, 1944, and in the third week of May, 1943, not a single shearwater was seen. The first was travelling east from Nova Scotia to 30°W. at 42°N., the second from Halifax to the same longitude between 43°N., and 45°N., and the third from Halifax to 42°N. north of the Azores. However, there are two records of small numbers of the species moving into this area as early as March. Two birds were seen by Venables (1938) on March 21st, 1937, in 42½°N. 42°W., and we record two birds on March 30th,

* In early seasons the Great Shearwaters may be well in advance of the limit here referred to; I found them well distributed, though in small numbers, as far as 55°N. 13° 20'W. only 150 miles from Ireland, by May 31st, 1945. In mid-Atlantic on June 2nd (52½°N. 33°W.) the number seen averaged 27.5 per hour (5.13 hours); and on June 3rd (50°N. 40°W.), 50-75 per hour.—V.C.W-E.

1945, in $43\frac{1}{2}^{\circ}\text{N}$. $42\frac{1}{2}^{\circ}\text{W}$., indicating that migration had begun. These few birds in the early months of the year may possibly be non-breeding; the main body of birds, however, was delayed until early June. On the 7th of this month, when we were sailing from the Clyde to Halifax by more or less the shortest route, the first *P. gravis* were seen in the eastern Atlantic at 53°N . $17^{\circ} 40'\text{W}$., when 15 were counted during three-quarters of an hour. Reaching 35°W ., we found them common to 48°W . at 48°N . and frequent from there till we reached the western edge of the Bank. None was seen from that point to Halifax.

They were more abundant and more widespread than at any other time of the year in late June and early July. Huge flocks of many hundreds were passed on the water, and for three days on one transect the numbers seen daily must have reached the four figure mark. This was in a diagonal section of ocean running from approximately 30°W . to 45°W . and between 51°N . and 57°N . at its eastern edge. Rooke (1935) counted 129 per hour from 40° - 45°W . on August 7th, far in excess of that for any other area. They were, however, present throughout the width of the ocean, the most easterly being five birds in $57^{\circ} 54'\text{N}$. $14^{\circ} 36'\text{W}$. on June 18th, 1943, and they were found as far west as Halifax. Throughout late July and early August this centre area was populated, but none was seen between Halifax and the mid-section of the Banks.

In addition to the two June records north-west of Ireland mentioned above, this bird is recorded by Harvie-Brown and Barrington (1896) as being present in the Rockall area in June. In July, one bird was seen on the 12th of the month in 56°N . 13°W . and small numbers to 8°W . on the 26th. Philipson (1940) records two at 47°N . 15°W . and two more at $45\frac{1}{2}^{\circ}\text{N}$. 20°W . in the same month. These records suggest a southern limit even further south than our own.

Philipson also records another two almost in mid-ocean at $39\frac{1}{2}^{\circ}\text{N}$. 37°W . On each of these three dates *P. diomedea* were also recorded.

Wynne-Edwards maintains that *P. gravis* migrates north in the western half of the ocean and that the greater body of these birds return south on the eastern side. It would appear from our records however, that this is not wholly true. Certainly if there was a movement north on the eastern side there would be spring records of *P. gravis* and *P. diomedea* in the same area, but the nearest we get to it are Philipson's July records. Numbers filter over to the waters of the United Kingdom in June and July, and by late September they were seen from the North Channel to 12°W . and further to the north (recorded by K. Williamson (*in litt.*) as common on the 17th of the month, 1945, some 50 miles W.N.W. of Fair Isle), but the numbers cannot be more than 10 per cent. of those still present in the western Atlantic at the same date. In late August a few were seen on the Nova Scotian Banks and no more till the western edge

of the Grand Banks was crossed. The bulk of the birds lay between 39°W . to 24°W ., a fact confirmed by two transects, no more being seen until north Irish waters were reached.

In early October the area between Halifax and the south tip of the Grand Banks was filling up, and by the middle of the month the birds extended (with gaps) from 60°W . to 30°W ., with others at 23°W . all south of 50°N . During this same period none was present on a crossing routed as far north as 59°N . in 28°W . and there were none in south Irish waters. It would seem, therefore, that during the summer the species extends across the ocean from the west side, but with the approach of autumn the bulk begins to travel south mainly in mid-ocean until roughly 45°N . is reached, before they move to the western side of the Atlantic. Numbers doubtless move south on the eastern side, but it can only be a small proportion of the whole. Never at any time did we record a greater number of *P. gravis* east of the 30th meridian than west of it.

There are several records of the Great Shearwater in British waters during the winter months, e.g., October 21st and November 4th, 1936, off the Hebrides (MacFarlane and MacRae, 1937), one off the Hebrides, October 16th, 1936 (Campbell, 1937), one picked up dead in Kent, November 21st, 1938 (Joy, 1939) and the remains of another in Sussex, November 7th, 1938. It is only to be expected that stragglers are left long after the main body has gone and we



FIG. 3. STAGES OF MOULT OF GREAT SHEARWATER.

have three winter records for the other side of the Atlantic. Two birds were seen on October 29th, 1943 in $49^{\circ} 09'\text{N}$. 48°W . and a single bird on December 6th, 1943 in $45^{\circ} 49'\text{N}$. $47^{\circ} 50'\text{W}$. On December 7th, 1942, on the north shoulder of the Grand Banks Great Shearwaters were seen passing the ship west-bound for about two hours and estimated to number about 50. If all these records can be considered, the remnants of the migration south still balances in favour of the western Atlantic.

Birds in moult, as evidenced by the conspicuous wide bands of varying length along the wings, due to the shedding of the wing-coverts and exposure of the white bases of the quills, are present up till June. They correspond to four types (see illustration).

After that month very few were seen with white markings, but on August 2nd two were seen of type B, and on October 4th on the south tip of the Banks another type B was observed. We also record one bird on August 15th, 1943 showing a white primary on the right wing and with one primary missing.

CORY'S SHEARWATER—*Puffinus diomedea* (Scop.) [= *Kuhlii* (Boie)].

Of the two sub-species of this shearwater, *borealis* would undoubtedly come under our observation more frequently than *diomedea*, though we cannot exclude the possible presence of the latter. There is little information in print of the occurrence of *P. d. borealis* in the area dealt with. Wynne-Edwards (1935) says that it wanders into the North Atlantic spreading north and west from July to October, reaching its northern limit in late August and September at 50°N. 30°W.

Distribution.

The earliest date for the species appearing in considerable numbers was May 19th and 20th, 1943, when it was numerous from 42°N. 35°W. to 45°N. 20°W. However we record five birds in this area

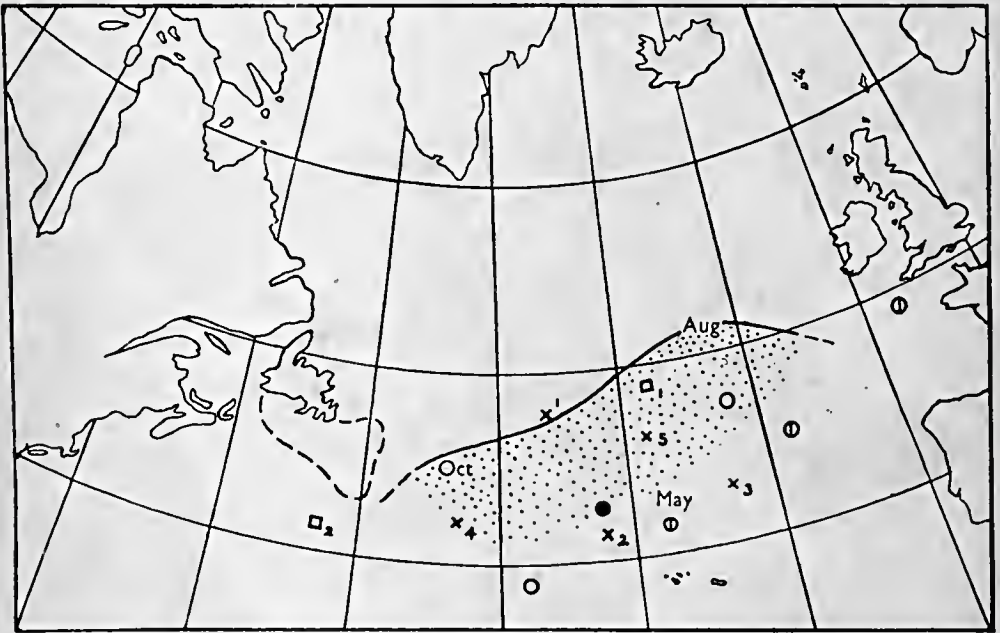


Fig. 4. DISTRIBUTION OF CORY'S OR NORTH ATLANTIC SHEARWATER

- | | | | | | |
|-----------|---------------|---------|----------------|-----------|-----------|
| x 1. Oct. | } (Venables). | ⊙ Sept. | } (Philipson). | □ 1. Aug. | } (Mayr). |
| 2. May | | ○ July | | 2. .. | |
| 3. .. | | | | | |
| 4. March | | | | | |
| 5. .. | | | ● April (MNR). | | |

for April 1st, 1945, and Venables (1938) has two records for March 21st and 22nd, 1937, which also come within the area marked on the map. There is evidently a considerable non-breeding population of *P. diomedea*, extending north of the 40th parallel from late

March till October, reinforced in and after August by birds from the breeding-stations.

Throughout late August, September and early October they spread west to 45°W . at 45°N ., reaching their limit in the first half of October. In the second week of that month we found them frequent each day for a distance of 840 miles travelling west to east.

Puffinus gravis and *Puffinus diomedea* were first met with in the same area during mid-August north of the 50th parallel. As Wynne-Edwards says, the northern limit of the *P. diomedea* range more or less coincides with the southern limit of *P. gravis*, though there is a certain amount of overlapping before the movement south begins. This is to be expected as one is mainly a warm water species and the other an inhabitant of the colder regions. Reference to the map shows that the northern limit of the *P. diomedea* range approximately coincides with the course of the Gulf Stream.

On August 28th, 1944, both species were common in an area $50^{\circ}\text{-}52^{\circ}\text{N}$. $24^{\circ}\text{-}29^{\circ}\text{W}$. Again in the same year during October 17th and 18th, when the migration south of *P. gravis* was in full swing and *P. diomedea* at the extremity of its range, both were well represented from $46^{\circ}\text{-}48^{\circ}\text{N}$. $41^{\circ}\text{-}23^{\circ}\text{W}$. Mayr (1938) also mentions seeing both species during almost the whole of a trip from the United Kingdom to New York in early August. The area was not visited in November, but by early December there was no sign of the species even in the southern part of the area traversed.

In the diagram all the records obtained from other references come within or around the area we have marked. East of 15°W . none was recorded and Witherby (1940) analysing all records of *P. d. borealis* in British waters has shown it to be at least very scarce.

Characteristics.

After a certain amount of practice the small differences in size, length of wing and mode of flight of the two shearwaters become distinctive enough for quick identification except at considerable distances. The dissimilarity of the two species is found to be considerable when they are well known.

P. diomedea is noticeably larger, with longer and slightly narrower wings, and has a slower, stronger wing-beat, and, as pointed out by Mayr (1938), does not hug the sea-surface so closely. It was found that they could often be identified from an aircraft over the sea at a height of 1,000 feet. Details of plumage colouring are only evident at close quarters, but are quite unmistakable. The present species lacks the clear-cut dark brown cap, which is distinctive of the Great Shearwater. The white bar at the base of the tail is always narrower and less conspicuous than in the Great Shearwater, but is a variable character, in some being very noticeable and in others apparently absent.*

* A further point is that the present species has a very noticeable light-coloured bill, whereas the Great Shearwater's bill appears as dark as the cap on its head and so therefore inconspicuous.—V.C.W-E.

SOOTY SHEARWATER—*Puffinus griseus* (Gm.).

Only seven examples of this bird were seen, which does not allow us to add to the present knowledge except to repeat and confirm that it cannot be considered common in this area of the North Atlantic. All records come within the usual dates from July to September, except for a single bird on May 23rd, 1943. This bird was seen off the north coast of Ireland with the Scottish islands in sight and was disturbed from the water with a flock of Razorbills, Guillemots, Kittiwakes and Fulmars. The other dates are—one on July 3rd in $50^{\circ} 25' N.$ $38^{\circ} 14' W.$, one July 5th in $47^{\circ} 51' W.$, one August 15th in $49^{\circ} N.$ $41^{\circ} W.$, and three at intervals September 10th in $51^{\circ} N.$ $41^{\circ} W.$

Fig. 5. SOOTY SHEARWATER

1. 27 9 39	1 bird	} (Philipson).	4. 23 5 43	1 bird.
2. 28 9 39	5 birds		5. 5 7 43	..
3. 3 7 44	1 bird		6. 15 8 43	..
			7. 10 9 43	3 birds.

FULMAR—*Fulmarus g. glacialis* (Linn.).*Distribution.*

The Fulmar is the only bird to be found commonly throughout the ocean both summer and winter, though there is certainly an increase in population in the inhabited area in winter. Although the most recent authorities give a definite winter and summer range in the North Atlantic we find, after our extensive experience that these conclusions seem to be based on insufficient evidence, particularly for the south-western part of its range.

Our summer and winter transects covered the southern limit in each season and on this point we disagree with the limits laid down by Wynne-Edwards. In his paper he illustrates the winter and summer limits of this species (Fig. 12), but we find that we are unable to substantiate these claims with our own information. It is significant that everything points to a winter limit roughly corresponding to the summer one and possibly slightly north of it in mid-ocean, neither extending as far south as Wynne-Edwards's January limit.

The majority of our transects in the middle of the seasons did not vary to a large extent, and it was easy to see the growth and

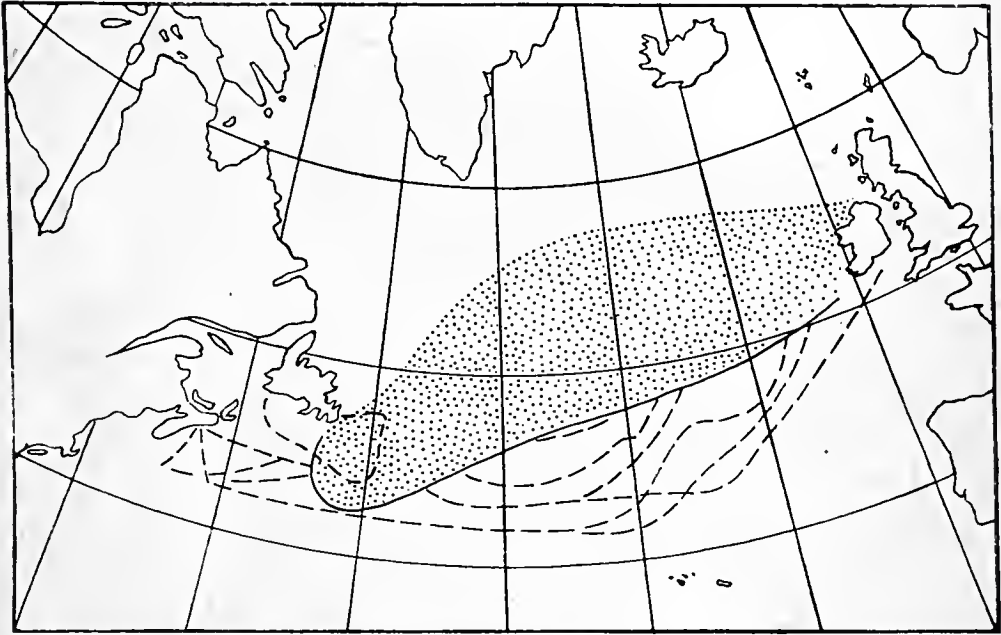


Fig. 6. SUMMER DISTRIBUTION OF FULMAR
(April - Sept.)

Broken lines represent routes taken during this period when no Fulmars were seen.

decline of the Fulmar population in a particular section of the ocean. In the diagrams illustrating our summer and winter southerly limits, the broken lines mark routes taken during each season when no Fulmars were seen. Distribution throughout the northerly part of our area was comparatively even, but with an increased density in the winter months.

During the summer there appeared to be a particularly favoured area in mid-ocean which was invariably populated by large numbers of Fulmars. The greatest density in a single day was noted on June 20th, 1943, in $57^{\circ} 16'N. 30^{\circ} 44'W.$, when concentrations up to 400 were passed, and it was on this day that the greatest flocks of *P. gravis* were met with. Similarly, in early May, 1944, when the species was widespread from the eastern edge of the Grand Banks to northern Ireland, at the same longitude, but $50^{\circ}-51^{\circ}N.$,

the largest concentrations of the summer were seen. This spot continued to be abundantly populated with Fulmars, and later *P. gravis*, till the end of September, by which time numbers had begun to decrease. By early May Fulmars were scarce on either side of the ocean, but extremely numerous from 30° - 36° W. at 50° - 52° N. as previously indicated. The reason for a concentration in this area is not apparent, but is probably to be correlated with the distribution of food. In June the area of greatest abundance in the southern part of the range was from 30° - 32° W at about 49° N. with other large numbers north and east off the north-east shoulder of the Banks. In early July it was from 27° - 40° W. at 51° - 52° N.

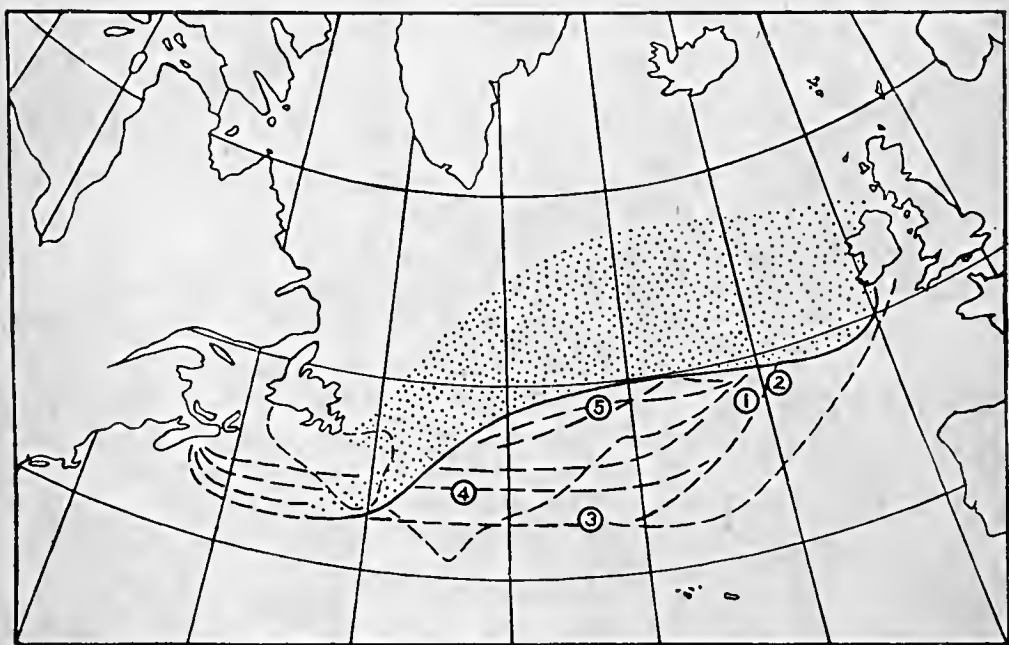


Fig. 7. WINTER DISTRIBUTION OF FULMAR
(Oct. - Mar.)

Broken lines represent routes taken during this period when no Fulmars were seen
(Isolated records.....①)

and in early August at 55° N. from 20° - 42° W. It seemed to be a gradual spreading to the west and north-west and north-east and east. It was noticed that by September, numbers appeared north-east of the Grand Banks.

A similar increase in this locality was noted by Wynne-Edwards (1935), but on the eastern side late in the same month at 50° N., they extended only to 20° W. It was only in the summer that the concentration of Fulmars mentioned extended south of 50° N. (see diagrams of January and June transects). By the middle of August a great circle line from the south tip of the Grand Banks to the continental edge off southern Ireland seemed to go roughly along the southern limit of its range with a great scarcity of birds

along this line in mid-ocean. They were then already vacating the inhabited area south of the 50th parallel in mid-Atlantic.

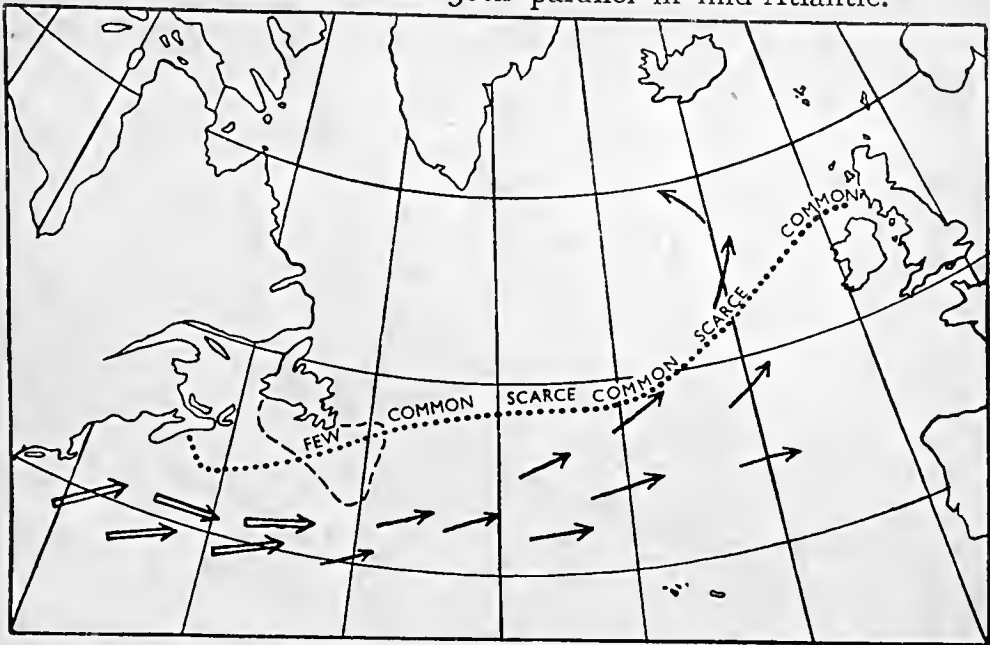


Fig. 8. DISTRIBUTION OF FULMAR. SUMMER TRANSECT JUNE 4th-19th
Showing extent of Gulf Stream drift for August.



Fig. 9. DISTRIBUTION OF FULMAR. WINTER TRANSECT JAN. 5th-16th
Showing extent of Gulf Stream drift for February.

In late August from Halifax to northern Ireland there was a break-up in the regular trans-ocean distribution with all the Fulmars east of 33°W . except for a few off the eastern edge of the

Banks. In October, one was seen on the southern tip of the Banks, and no more till 23°W . was reached at 49°N .; five were then counted between that point and 18°W . In December, we crossed to Halifax from southern Ireland nearly all the way at 45°N ., well within Wynne-Edwards's limit and not a single Fulmar was seen. In early January (see diagram) between the same two places, a route which in summer would have been populated with Fulmars all the way eastwards from the Banks, the only ones seen were on the southern tip of the latter. On February 2nd, two Fulmars were seen $53\frac{1}{2}^{\circ}\text{N}$. $15\frac{1}{2}^{\circ}\text{W}$. and no more throughout the ocean from there to 45°N . 25°W ., then westwards to Halifax at 43° - 44°N . In early March the only Fulmars observed extended to 18°W . off southern Ireland and later in the month to 13°W ., but none from that longitude and 52°N . to Halifax. This presumably indicates a movement south and south-west on the eastern side. In the first two weeks of April there was none from 63° - 30°W . at 42°N . and from that point to 52°N . 18°W . By this month, however, the gradual movement to fill up this gap is progressing, but there is very little effort to push the limit southwards; it is more an increase in numbers where before birds were scarce.

It appears that though there is little difference in the southern oceanic limits of the Fulmar's range in winter and summer, there is a tendency in the cold season to move away from the mid-Atlantic south of the 50th parallel, leaving the area almost barren. Reference to the Admiralty Navigation Manual (1938) Current Charts for August and February, shows that in mid-winter the mass of warm water from the Gulf Stream has a more northerly position in mid-ocean than during the summer. This coincides well with the area vacated in winter by the Fulmar. With the advent of summer large numbers move into this oceanic gap, creating a more even distribution from east to west. The Gulf Stream is responsible for making the limits in each season run approximately south-west and north-east. Roughly speaking, in density of Fulmar population, 55°N . off Ireland corresponds to 45°N . off the Grand Banks. In both seasons the main body of birds lies to the north of a line joining these two points

Wynne-Edwards's graph shows a great preponderance of the species in the west Atlantic, but he usually crossed the Fulmar's range diagonally, from more or less its southern limit on the east side to well into its area on the western.

The journey to Murmansk in May, 1945, was interesting in that it showed an abundance of the Fulmar almost throughout the whole of the journey excepting that it was rather scarce at the extreme northern extent, i.e. 72°N . on both the outward and inward trip, but became common again to the east and west.

Colour Phases.

An attempt was made to classify the colour phases as suggested by Roberts (1934) and Fisher (1939), who separate four classes, double dark (DD), dark (D), light (L), and double light (LL). It was found that the variations throughout all the degrees LL to DD occurred commonly, but for practical reasons we failed to use the arbitrary means, i.e., between L and D, to estimate the percentages given in our results.

Our results therefore include among the dark phases all but the "white" Fulmar or LL.

During the summer months, i.e. June to September, in the trans-ocean areas it was possible to count the actual number of the "blue" variety seen, nine in all (5D and 4L), and it is therefore not possible to give these figures in percentages. They occurred chiefly in the western half of the ocean; seven were west of 30°W. and the most easterly was in 54°N. 25°W. on August 19th, 1943.

The most striking illustration of the gradient of this polymorphic character was seen in May, 1945, when the complete range was noted from the whole population in the area of the British Isles being completely "white" or LL, to the whole population being double dark or DD in the Murman area. The range was progressive and was clearly visible at any stage of the journey, the reverse being easily seen during the return. The first blue variety was seen in the region of 62°N. and east of the Faeroes. Here five birds were seen on the outward journey, and the number was estimated at five per cent., in the same region on the return. K. Williamson (*in litt.*) has seen only two birds of this variety in the Faeroes area, one in March and one in May, and from local information he states that the dark Fulmars are very scarce in the Faeroes. The increase then became marked and the change from hour to hour could be seen. In 66°N. it was approximately 33 per cent., in 68°N. 66 per cent., and 90 per cent. in 70°N. When east of 30°E. the birds were all darkly coloured. The change in colour was not only evident, but also the increase towards the darker phases. In the southern parts of the range all varieties occurred and the darker types were more rare, while in the northern parts and the Murman area all belonged to D or DD classes; the vast majority were of the latter. Fisher (1939), using Roberts's arbitrary means, suggests that the optimum of about 60 per cent. dark phases is reached about the North Cape to Spitsbergen, with a progressive falling off again to the eastward. This was certainly not so as far east as 34°E.

The winter distribution of the "blue" Fulmar in the trans-ocean region shows a great increase of this type in that area, and this therefore lends support to the evidence of the general increase of the population in that region. There was a progressive increase in the numbers seen as one travelled westwards. Throughout October (1943) the records still came singly, but for the rest of

the year and until January (1944) it was found easier to estimate numbers as percentages, as it was quite impossible to separate individual birds. The estimation was arrived at by counting the average number of dark birds present around the ship during a watch, against the average total in our wake. The greatest majority occurred west of 30°W ., where percentages ranged from three per cent. to 10 per cent. on eleven days. Three records of under one per cent. in this area were made in October and include one record off Cape Race. East of 30°W . there were six records; two of less than one per cent., two about one per cent., and one each of five per cent. and eight per cent. These two last records were in northerly latitudes— 57°N . 24°W . on November 3rd, 1943, and 57°N . 29°W . on November 2nd respectively. The most easterly,

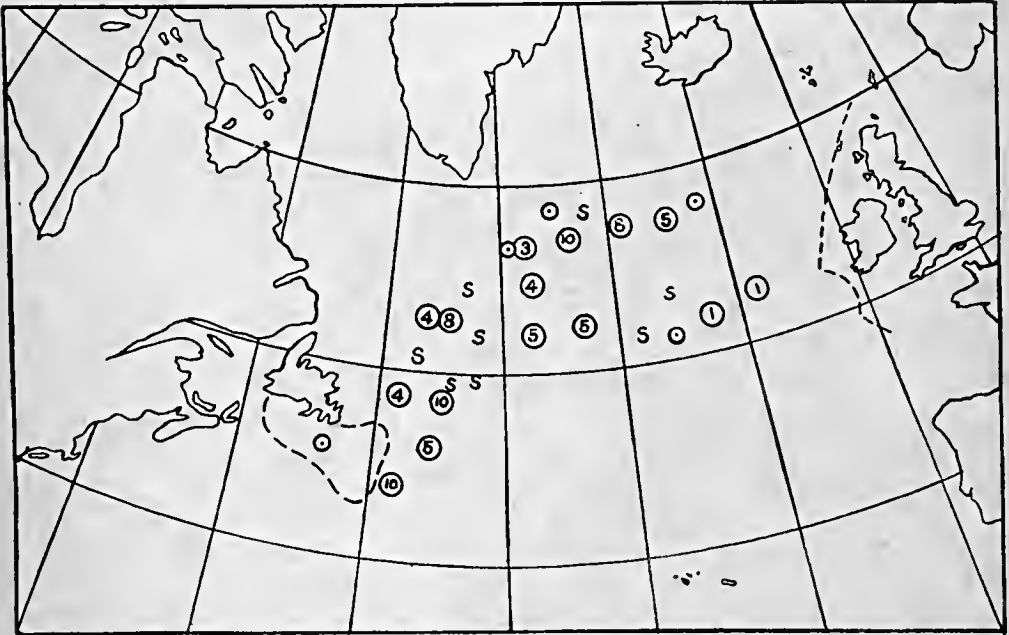


Fig. 10. DISTRIBUTION OF BLUE PHASE OF FULMAR

S = Summer Records (June to Sept.).

Winter Records \odot = < 1%, \circ = \leq 1%, \ominus = \leq 10%.

estimated to be about one per cent. and the only record east of 20°W ., was on January 27th, 1944, in 52°N . 17°W .

The "blue" Fulmar will therefore be seen to move southward in winter, which may indicate a move of the general population. It is shown also that there is a progressive increase in this character as one travels westward, up to 10 per cent. of the whole population in the area to the north-east of the Grand Banks, and that to the northwards in the breeding-season there is a steady progression from the United Kingdom area, where the white Fulmar is completely predominant, to the Murman area, where the dark Fulmar occurs exclusively.

Further research should fill the gaps and show how this character is distributed in the intervening parts of the Fulmar's range.

GREY PHALAROPE—*Phalaropus fulicarius* (Linn.)

OR

RED-NECKED PHALAROPE—*P. lobatus* (Linn.)

It is impossible to state which of these two species came under our observation, although when considering those met in mid-ocean there is always a strong presumption that they are *fulicarius*. Amongst all the birds seen there were none showing any trace of the breeding dress, and since careful scrutiny of any of them was never possible we could never with certainty name them.

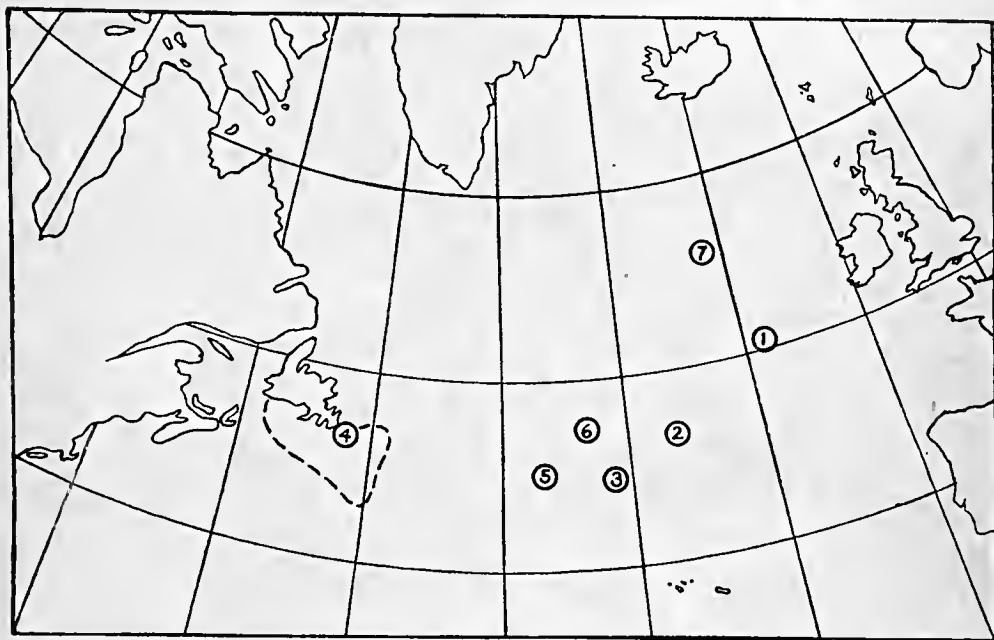


Fig. 11. GREY OR RED-NECKED PHALAROPE

1. } Sept.	4. Sept.	7. Sept. (Rooke).
2. } Sept.	5. } Dec.	
3. }		

On September 21st, 1943, several flocks amounting to about 80 birds were seen while yet within a few miles of St. Johns, Newfoundland. On September 26th five phalaropes were seen in $50^{\circ} 21' N. 18^{\circ} W.$ Again on September 28th 1944, three flocks of three, three and four respectively were seen in $46\frac{1}{2}^{\circ} N. 26^{\circ} W.$ The following day two more were seen floating on the calm sea in $45^{\circ} 15' N. 31\frac{1}{2}^{\circ} W.$ All these birds were in winter plumage, but it was impossible to identify the species. Murray (1935) saw two in winter plumage on August 23rd, 860 miles from Havre, presumably $45^{\circ} N. 15^{\circ} W.$ and Rooke (1936) saw a party of ten in $55^{\circ} N. 21^{\circ} 15' W.$ on September 14th, 1935.

The trans-ocean movement may be more widespread than is believed, for Wynne-Edwards (1935) had little evidence of migration in the eastern half of the ocean. Holmes (1939), who summarizes all previous findings, shows that the especially favoured locality as the wintering area of the Grey Phalarope lies between 10° N. and 20° N. off the West African coast. It is feasible, then, that the area covered by our records would have to be crossed by the birds to reach these winter-quarters.

The numbers seen off the Newfoundland coast accord well with many other records which show that this area (Labrador and Belle Is. Straits) usually sees much of the autumn migration, though it would appear to occur earlier than this record indicates. This may have been a late wave of migration.

On December 8th and 9th, 1943, in 44° N. 39° W. and 46° N. 35° W. one and five birds respectively were seen. They were in the grey winter dress and must have been laggards of the main migration, as they were yet far from their wintering area off the west coast of Africa. There do not seem to be any other records of so late a date from similar latitudes.

SANDWICH TERN—*Sterna s. sandvicensis* Lath.

Terns of this species were easily recognized on the two occasions recorded and constitute interesting examples of dispersal after breeding, for they cannot be said to have been on regular migration routes. The outstanding example was that seen on August 19th, 1943 in 54° N. 25° W. steadily flying south-west. The second was in the Rockall Bank area on September 3rd, 1943; this bird attempted several times to alight on the fore-castle of the ship.

ARCTIC TERN—*Sterna macrura* Naumann.

Our Atlantic transects covered two autumns, but only one spring at sea; hence a considerably larger number of oceanic records was obtained for the former than the latter. Nearly all were of small flocks of terns at wide intervals with little evidence of a mass migration in mid-ocean. The map illustrates autumnal migrations and also the direction of flight in most cases. On no occasion could any of the birds be strictly identified as *macrura*, but with the evidence available it seems safe to presume a preponderance of this species.

Wynne-Edwards suggests May 28th-June 3rd as the time of the main movement during the spring migration and this is borne out by most of our observations. On May 10th, 1944, a tern was seen in 52° N. $22\frac{1}{2}^{\circ}$ W. and another on June 11th in $48\frac{1}{2}^{\circ}$ N. $31\frac{1}{2}^{\circ}$ W., but real evidence was observed west of Ireland and in the Irish Sea. On May 22nd, 1943, during a voyage eastwards, when the ship was approximately 200 miles west from the south Irish coast, four terns passed the ship's bows flying west. On five other occasions during the remainder of the day, flocks passed the bows all travelling in the same direction.

Crossing the north coast of Ireland none was seen until we were about to enter the North Channel. Thereafter all the way down the Irish Sea till dusk, parties of terns crossed the ship's bows regularly, all flying from the English to the Irish side. This was evidence of the spring movement well under way. The urge to migrate must have been new and strong, as never again from a ship were terns seen whose flight was so steady and constant. On May 25th, 1945, single birds and flocks were seen frequently from the air flying west, between the Isle of Man and the Irish Coast. Again on May 28th in the area north of the Isle of Man and in the North Channel many large flocks were seen, sometimes numbering over 50, all flying westwards.

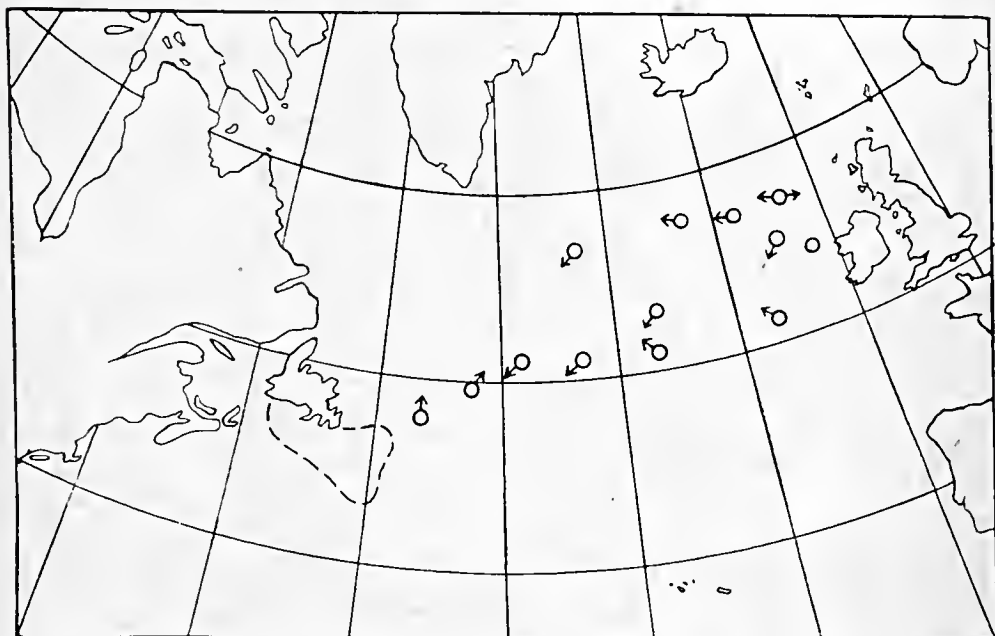


Fig. 12. ARCTIC TERN

Autumn records giving direction of flight.

Some time after this date the westward migration across the Irish Sea came abruptly to an end. On June 6th, 7th and 14th, aerial trips were made across the Irish Sea and North Channel and though small numbers of terns were seen there was no evidence of a westerly movement.

The thirteen autumn records are confined to July, August and September, from July 3rd to September 25th, and range the width of the Atlantic. On July 20th, 1944, large flocks of terns were seen off the North Irish coast and in the North Channel. Nearly all were resting on the water as if a preliminary congregation before migration south. Some birds, however, must depart before this, for on July 3rd, 1944, a single bird was met in mid-ocean in 50° N. 38° W. and another was seen on July 27th, 1944, in 51° N 27° W. The

migratory movements continued in small numbers throughout August across the breadth of the ocean.

Although we cannot record large numbers of terns our evidence agrees exactly with that of Wynne-Edwards (1935) in that the height of the autumn migration occurred in the first week of September. On four days between September 3rd and 7th, 1943, 32 birds were seen ranging from the Rockall Bank to 55°N . 31°W . and this comprised about 50 per cent. of all seen in the autumn season. Our last record in autumn was for September 25th, 1943, in 51°N . 33°W .

Comparing the spring and autumn migrations, it appears that whereas the former is short in duration and concentrated in effort, the latter covers a considerably longer period and is far more leisurely. This would account for the few spring pelagic records and the numerous autumn ones.

Opinions differ on the degree of reliability which should be attached to the direction of flight of terns at sea and reference to the map of autumn records will show little constancy on this point. The mean average if anything is south-westerly. A flock of fair size appears to follow a definite course and their flight seems more purposeful than that of a single bird. They might be buffeted by the winds or zigzag to avoid wave crests, but their general direction is steady. Single birds seemed to be governed mainly by their fancy, occasionally even doubling on their tracks. On the other hand, in a convoy, a single bird would often wander about inspecting the ships and, with such outside influences, noting direction of flight was almost guesswork. This point is brought out conclusively by aerial observation, but this was only seen in the Irish Sea. The characteristic meandering flight of the species was clearly seen and in most cases the zigzags or diversions to either side were of some length, enough to convince a ship observer that that was the main direction in which the bird was travelling.

It was rare to see terns pause in their flight in the trans-ocean area, in fact the only occasion was on July 27th, 1943, when one was watched standing on a floating piece of driftwood while two others were hovering around.

Wynne-Edwards comes to the very definite conclusion that the direction of this trans-ocean autumn migration is west to east and finds support for his evidence in other papers. If one can therefore rely on the recorded observation of the mean direction of flight of the birds we observed, it would appear that our findings are opposite to those of Wynne-Edwards!* Further, Rooke (1936) agrees with our suggestion of an east to west trend. The final answer may rest in the difficulty of making exact records of the direction of flight. That there is a widespread trans-ocean movement which is at its

*It should be noted that my deductions were based on observations of 321 birds seen in the pelagic zone during the autumn migration, compared with the author's total of about 64.—V.C.W.-E.

height in the beginning of September is perfectly evident. It seems probable, however, that the direction is more southerly than suggested above, for a bird that has to travel so far would be unlikely to lengthen its journey by making large zigzags across the ocean.

HERRING-GULL—*Larus argentatus* Pont.

We did not find any reason to separate the different races of this species. It was not customary to meet these gulls beyond a day's sailing from the coast, when they would disappear with the advent of nightfall, but in the winter and spring months there was evidence of a dispersal and migration.

It was late in the season before records were obtained of Herring-Gulls over 100 miles from land and the movement westwards was first noticed on December 4th, 1944. Sailing down St. George's Channel we saw very large numbers of this species flying steadily westwards into the wind from the South Wales area to Ireland. As we entered the open sea the marked westerly drift became very much less, but numbers of birds were met with until we crossed the edge of the continental shelf. Reaching the Canadian side we saw the first Herring-Gulls 130 miles south of Cape Race on December 17th, and then afterwards small numbers were met with until we reached Halifax. On December 19th, whilst we were still 60 miles from our destination, four birds were following the ship's wake in terrible weather, picking up tit-bits in a wind of 50 knots, blowing from the north. They did not appear to experience any discomfort.

Throughout January, February, March and part of April they extended eastwards from Halifax to as far as the western edge of the Grand Bank, occasionally further, and there is one exceptional record for May 3rd, 44° N. 51° 40' W., 160 miles S.E. of Cape Race.

KUMLIEN'S GULL—*Larus glaucoides kumlieni* Brewster.

This bird deserves mention because it was seen sparsely about Placentia Bay and within sight of Cape Race and Cape St. Mary, Newfoundland, in the middle of January, 1944, and met again on March 16th, 1945 in 43° 37' N. 58° 32' W. It was recognizable by the very small amount of dark colouring, which appeared to vary in individual birds and seemed chiefly to be on the outer webs of the distal three or four primaries. In every other respect the gull resembled an Iceland Gull (*L. g. glaucoides*).

BRITISH LESSER BLACK-BACKED GULL—*Larus fuscus graellsii* Brehm.

The only record of interest, i.e., of an offshore bird, was on June 18th, 1943, in 58° N. 15° W. It was an adult and certainly identified as *graellsii*. This suggests that the Lesser Black-backed Gull is a rare inhabitant of waters away from the coast and is in direct contrast to Wynne-Edward's statement (1935, p. 316) that it is the commonest gull, excepting the Kittiwake, of offshore seas. In May, 1945, it was recorded several times as far as the Faeroes area and was absent thereafter.

GREAT BLACK-BACKED GULL—*Larus marinus* Linn.*Distribution.*

Apart from the Kittiwake and Glaucous Gull this species was the only other gull which could be regarded as "sea-faring," though it rarely occurred beyond the limits of the true offshore regions. Previous literature about this species has usually repeated the accepted fact that it seldom wanders inland or far out to sea. Wynne-Edwards (1935) quotes one record of three Great Black-backs seen 70 miles off Cape Farewell, but says it seldom wanders more than 40 miles from land.

Ringling returns throw very little light on the movements of the species. A British-ringed bird was recovered from N. Spain and



Fig. 13. WINTER RECORDS OF GREAT BLACK-BACKED GULL

others have been recovered in Great Britain from Finland, Iceland and Norway. This suggests a southerly drift in winter of at least some birds and it is possible that our oceanic records bear out this suggestion. Very few offshore records are available for the eastern side of the Atlantic, as will be seen from the map and the five marked range from 80-150 miles from land. They all come in a period from December to March.

On the Canadian side the movement is far more noticeable, and with the close of the breeding-season there is evidence of a dispersal as early as September, an immature bird being seen in 49° W. Oceanic records increase until a peak is reached in January. Reference to the table will show that during this month there are more records of Great Black-backs at sea than for any other.

Each record marked on the map refers to a bird or birds more than 100 miles from the nearest land.

<i>Month.</i>				<i>Days at sea.</i>	<i>Number of birds per 30 day month.</i>
September	...	...	...	28	1.5
October	...	...	...	30	7
November	...	...	...	14	—
December	...	...	...	27	7.7
January...	...	...	...	37	21
February	...	...	...	23	10.5
March	...	...	...	32	16
April	...	...	...	26	2.3

This gull is restricted to the eastern seaboard in North America, breeding from Maine northwards along the Labrador coast. Could it be that a number of the northern birds move south and congregate in winter in the waters off the Grand Banks of Newfoundland? Unfortunately our records only cover roughly 13 degrees of latitude off Nova Scotia and Newfoundland. It would be interesting to know what happens north and south of this area.

On April 29th, 1944, when we were sailing east from Halifax, the first Great Black-backed Gull appeared as land was disappearing, and they were frequent to a point 100 miles from Cape Sable. At least 50 per cent. were heading north, but with others it was difficult to say in which direction they were heading. Examples seen from the air during the winter months appeared to be doing no more than wandering about.

This species was frequent from 68° N. on the journey in May as far as the Kola Inlet, though between 100 and 150 miles from the coast of Norway. In the latitude of the Lofoten Islands they were most common and it was here too that Herring-Gulls appeared in unusual numbers with a few Glaucous Gulls.

GLAUCOUS GULL—*Larus hyperboreus* Gunn.

This gull, with the Greater Black-back, showed distinct signs of being offshore in habit and distribution during the winter months, although it was only met in the Grand Bank and coastal waters on the western side of the ocean.

Seven different birds were seen east of 50° W., the most easterly being in 48° N. 46° W., and they occurred in November and January. Many others were seen west of this near the shores of Newfoundland and Nova Scotia, the last being on March 16th, 1945, in 43° 37' N., 58° 32' W.

They were found already in their breeding area offshore and around the Kola Inlet in May, 1945. They were all north of 68° N.

KITTIWAKE—*Rissa t. tridactyla* (Linn.).*Distribution.*

Throughout the winter in the North Atlantic the Kittiwake is an almost constant companion of the sea-farer and has one of the widest distributions of any of our oceanic species. Wynne-Edwards (1935) deals with this species very fully and there is comparatively little to add to what is already known. However the area we covered includes what we believe to be the southern mid-ocean limit of this bird in the winter and we found it possible to delineate the line with some accuracy. Although it is recorded south to the Tropic of Cancer during this season it seems that in the true pelagic regions it is confined to north of the 40th parallel, though a few birds doubtless wander beyond this line. Furthermore our dates for the occupation of certain sections of the ocean differ to some extent from those given by Wynne-Edwards and show that the spread seawards is perhaps not so rapid and thorough as was previously thought.

The Kittiwake does not occur in the pelagic zone in summer. Until mid-July we have only one record, that of a single immature bird in 58° N. 23° W. on June 19th, 1943, seen west of 10° W. on the British side. None was noted on the Grand Banks of Newfoundland. During the last week of July, birds were found in both 1943 and 1944 as far west as 15° W. in 56½° N., and there were even odd ones as far as 19° W., indicating that a movement seawards was already progressing. Occasional birds were again met when travelling eastwards from 54° N. 25° W. to the North Channel in mid-August, though none was seen on a similar journey, but to the southward, in the second half of this month until the offshore regions were reached. This extension westwards was noted by Rooke (1935 and 1936) in early August as far west as 19°-30° W. about the 55th parallel and was practically absent in mid-September.

That this movement is not a very sustained one is shown by the fact that none was seen anywhere in the approaches to the pelagic zone apart from birds seen in the area of the continental edge on either side of the ocean throughout the month of September, though transects took us as far north as 56° N. and south of 50° N. in 20° W.

The appearance of the main body of Kittiwakes in mid-ocean occurred by the middle of October where none had existed at the end of September. They were then abundant during the whole of a transect from the North Channel to Newfoundland, which went as far north as 59° N. in 28° W., and on a similar return journey late in the month. McKittrick (1931) found a few present across the ocean in about the 54th parallel in the first days of October. At the same time, however, none was seen on a transect from Halifax to St. George's Channel which was south of 50° N. for almost the whole of the journey, excepting three birds in 48° 50' N. 28° 45' W. during a gale.

During November, December and January transects in a general line running from Newfoundland to the North Channel, the most southerly passing through the 30th meridian in 48° N., showed Kittiwakes present throughout the ocean, but not quite so abundantly as to the northward. In early December, however, on the southerly route to Halifax, Kittiwakes decreased in numbers until finally disappearing at 45° N. 22° W. Then followed five days in which only two birds were seen in 34° W. They then appeared 160 miles east of the Grand Banks on the 45th parallel *en masse* almost like a plague of locusts. For two hours they flew past eastwards in groups and straggling parties, very few taking any

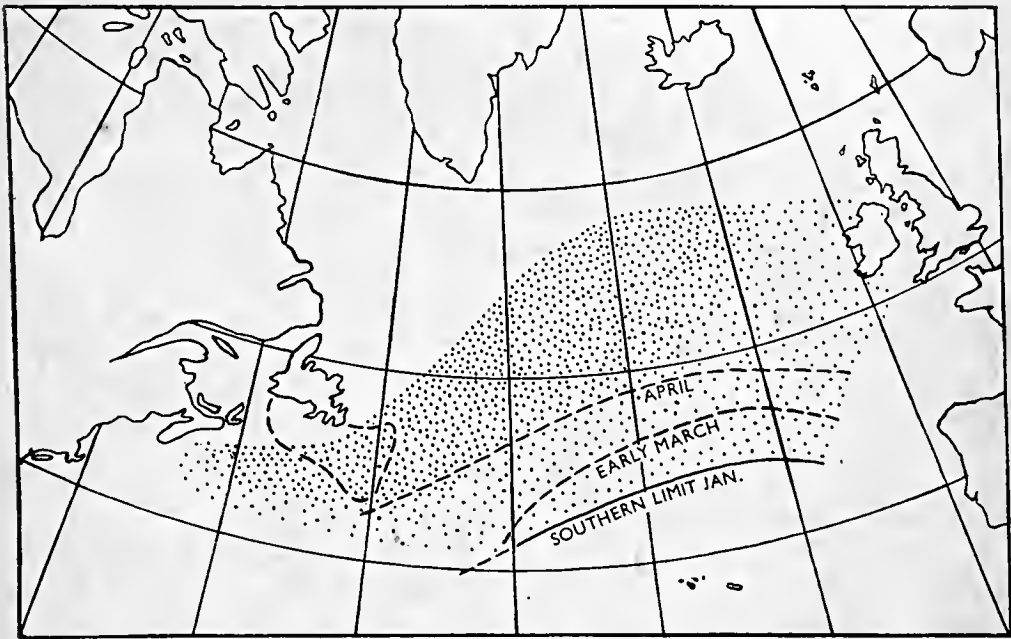


Fig. 14. KITTIWAKE. WINTER DISTRIBUTION AND SOUTHERN LIMIT
Density of dots indicates frequency of birds.

notice of the ship. Those near the ship called frequently and many were flying at heights of over 400 feet. Once a large number was seen flying round in a huge circle about 300 feet up. An estimation of 15-20 per cent. "tarrocks" was made. From 14.00 hours until dusk the numbers decreased slightly and the strong easterly movement that had been so conspicuous practically disappeared. They remained common for the next two days, the last being seen at 45° N. 58° W. about 150 miles west of the western edge of the Grand Banks.

In early January a crossing from Halifax to St. George's Channel between 45° N. and 50° N. for the first time showed Kittiwakes present every day, with the smallest numbers in mid-ocean. Throughout January and February they seemed to reach the limit of their winter distribution, though scarce from 40° W. to 20° W. at 42° N.

to 45° N. In late February and early March over the same route there was a gap in mid-ocean from 19° W. to 37° W. and south of 48° N. on the east side and 45° N. on the west side. This was confirmed again on another crossing in the first half of March when their absence was noted between 20° W. and 43° W. south of the 45th parallel.

By the end of March and the beginning of April the range had contracted further, a few being met between 48° W. and 59° W. on the 43rd parallel, though a second transect at the same period on the 42nd parallel lacked records. In early May a few remained on the centre of the Grand Banks, but late in the month they had gone. There was a similar disappearance of birds from the eastern offshore zone.

It appears, therefore, that the occupation of the pelagic zone in winter has started by the end of July, though the main movement does not take place until October, and that the movement is probably in a S.E. and S.W. direction from either side. In mid-ocean the species is very scarce south of the 45th parallel and at this latitude between 20° W. and 40° W. the sea is only inhabited by them for two months of the year, January and February (possibly late December). A map of our records clearly shows a mid-ocean gap which the species tends to avoid and which, with the approach of spring, is the area to be abandoned first. The population was densest in the north and west of the area under examination.

During heavy weather the Kittiwake often settles on the sea to avoid battling against a strong wind and they have been seen in small groups on the water rising each time a wave came along, which was about to break over them, and resettling again. A 55 knot gale taxed their resources, but making use of shelter many were able to hold their own, and when the effort became too much they either turned with the wind for a time or went down to the water.

Throughout all our observations it was noted that the tarrock or bird in first winter plumage was always present and was estimated to constitute over all about 5 per cent. of the total population. This was also true of the journey northward in May, 1945, to Murmansk, when the Kittiwake was plentiful throughout. However on May 27th, when in 66° 26' N. 04° 17' E., it was noticed first that there were greater numbers of immature birds about and then two flocks each of about 20 birds and consisting entirely of tarrocks were seen. This flocking of the immature bird in the breeding-season had not been noted before, though it is mentioned as occurring at Rockall (Harvie-Brown and Barrington, 1896). In view of the fact that few immature birds are seen at the breeding-sites and inshore during the breeding-season, it is reasonable to expect that they should wander in offshore waters.

The Kittiwake is the most vocal of sea birds, its shrill cry often being heard above the noises of the ship and sea, but on the day mentioned above the flocks of young birds passed the ship with strident breeding calls, a most unusual sound at sea.

GREAT SKUA—*Stercorarius s. skua* (Brünn.).

This skua, though widespread throughout the area under investigation is less common than might be supposed. Its large and conspicuous form cannot easily be missed, yet we have only records for 18 birds seen between June, 1943, and January, 1944. It occurred scattered throughout the ocean with no tendency to gather in any one locality

From the map, it will be seen that the most westerly records occurred in October and December and that those for July and even September were from areas more adjacent to their breeding-grounds.

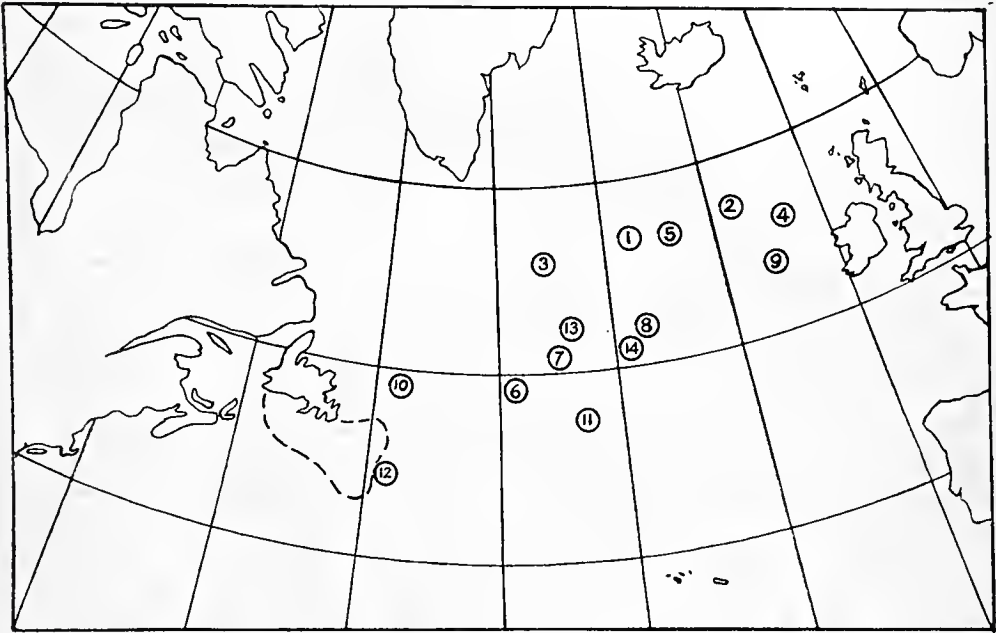


Fig 15. GREAT SKUA

- | | | |
|------------|------------|------------|
| 1. } July. | 4. } | 11. } |
| 2. } | 5. } | 12. } |
| 3. } | 6. } Sept. | 13. } Jan. |
| | 7. } | 14. } |
| | 8. } | |
| | 9. } | |
| | | 10. Oct. |

Little can be inferred from these few records except that a migratory dispersal does occur and birds wander westwards as well as southwards in winter. We do not suggest, however, that the limits of this dispersal are shown here.

It was customary to see this bird as a lone wanderer, but two or three were sometimes seen together. One item of note concerning its predatory habits occurred on September 25th, 1943, 50° 53' N. 33° 07' W. when one was watched chasing a flock of Great Shearwaters. It succeeded in forcing two individuals to the sea, one of which seemed to dive. It did not, however, appear to succeed in gaining anything from this chase.

POMATORHINE SKUA—*Stercorarius pomarinus* (Temm.).

In May, 1945, between the 17th and the 25th of the month, this bird was met with when already in its breeding area, 28 birds in all being seen, all north of 68° N. All the observations of this species in the trans-ocean area occurred during the autumn months, from September 26th to December 6th. These comprised six different records, scattered throughout the ocean, four east and two west of 30° W. One was in the Rockall area, but the others were in oceanic waters. A total of 33 individuals was seen, but of these ten were uncertainly identified. The majority, 18 birds, occurred in the month of October and 14 of these were seen in one day. The December record was our most southerly one (45° N. 47° W.) and the birds were presumed to be stragglers of the main migration.

Though our evidence is not sufficient for conclusive proof, it seems from the records of the three types of long-tailed skuas that the peaks of their autumn migrations across the ocean occur at different times. The Long-tailed Skua was only certainly seen on the mid-ocean tracks until August, the height of the migration of *parasiticus*, as pointed out under that species, occurs during September, and *pomarinus* was seen in the following months, chiefly October. It would appear, therefore, that they each have their own individual migrations, though some overlapping and intermingling must occur.

Habits and Characteristics.

The identification of the long-tailed types of skuas raises a most difficult problem and one which is not dealt with adequately anywhere. This problem is complicated by the diversity of the plumage phases.

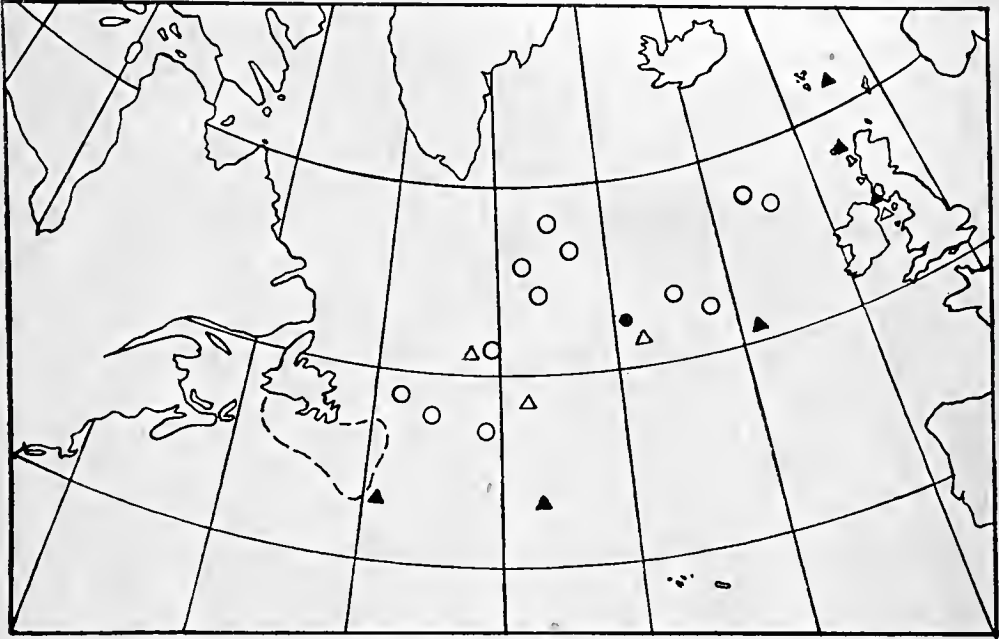
All of the 28 birds seen in Arctic waters were in adult dress and 22 were listed as belonging to the light phases, the others being uncertain. In contrast, five at least of the 33 seen in autumn were adult and of this total again seven (four adults) at least were light phase birds and 12 dark. No attempt could be made to determine the intermediate phases.

On October 19th, 1944, in 48° N. 23° W. a terrible gale was blowing, at the time estimated between 80 and 90 knots, often more. The Pomatorhine Skuas seen that day had perfect control over the situation and although creeping along at a very slow pace, deftly used the wave-hollows and every form of shelter open to them. Even at heights of 100 to 200 feet, to which some of them would now and again rise, they were able to turn and face the wind whenever they wished.

In May in Arctic waters we observed that these skuas followed closely in the wake of ships after the fashion of gulls, but those seen in autumn showed no liking for ships and so increased the difficulties of making exact observations.

ARCTIC SKUA—*Stercorarius parasiticus* (Linn.).*Distribution.*

The spring migration which we witnessed must have been at its height in May, for the records were wide-spread during a transect in the third week of that month in 1943; five single specimens were seen from about the south tip of the Bank to 200 miles off the Irish coast. The autumn migration was more prolonged, but was at its height in September, and the main facts of both of these migrations agree well with previous findings (see Wynne-Edwards, 1935, and Brooks, 1939).

Fig. 16. ARCTIC SKUA

- | | |
|---------------------|----------------------------------------------------|
| ▲ Spring Migration. | ● Unidentified but probable Arctic Skuas (Spring). |
| △ Autumn " " | ○ " " " " (Autumn). |

During the autumn migration 32 Arctic Skuas were definitely recognized and 31 probables seen outside coastal waters from the end of August to November; this number comprised 15 days' observation. The beginning of the autumn movement occurred at the end of August, when one skua was seen on the 19th chasing a tern in 25° W., a second and immature bird in the Irish sea on the 22nd and three watched flying S.W. on the 24th in 41° W. The peak of the migration would appear to have been in September, when 40 birds were counted, 15 more occurring in October and 7 in November.

All the adults recorded occurred during the end of August and September at the height of the migration and the majority at this time were adult, suggesting that the movements of the adult birds are more precise and that they are less addicted to wandering than

the immature. It was at this time that the largest gatherings were met; 14 birds on each of two days.

All these records were made in ocean waters, all excepting two between 15° W. and 50° W., supporting Wynne-Edwards's (1935) belief that the migration routes followed by this skua tend to be trans-ocean rather than coastwise or overland. The only individuals seen during the period under review in coastal districts were one in the Irish sea in August, 1943, and seven in Hebridian or Faeroese waters in May, 1945, and these latter were of course in their breeding area.

Amongst the total seen during the autumn migrations 31 light phase and 25 dark phase birds were recognized.

Habits.

We observed four skuas (three Arctic and one Pomatorhine) at rest on the sea which did not take to the wing until threatened by the presence of the ship, and again a single Arctic which followed the ship, consorting with Fulmars, and more than once settled on the water in the ship's wake with numerous other birds which were feeding; these are interesting exceptions to the general rule that skuas, especially of this species, do not alight on the water to feed while on migration.

LONG-TAILED SKUA—*Stercorarius longicaudus* Vieill.

Distribution.

Our records fall into two groups; those in May, 1945, were already in the breeding area and all were north of 66° N., and those seen on the ocean transects occurred during the months of May to August.

In May, 1945, 21 birds were seen, of which six were not certain records because of the distance at which they were observed. They were present in the Kola Inlet as well as at sea. In the ocean area the spring northward movement was only witnessed on May 8th and 9th, when six and thirteen birds respectively were observed; on the first day the direction of flight was noted as north-east, but on the second they were wandering vaguely westwards.

At the height of summer (June 20th) two were seen in 57° N. 31° W. and the autumn movement was illustrated by observing 11 certain and six indeterminate birds between the end of July and mid-August. All these mid-ocean records occurred between 30° W. and 45° W.

Characteristics.

All, no matter the time of the year, were in adult dress, and only the normal light-breasted type was seen. It was on their adult characters that they were recognized. Like *pomarinus*, they showed a reluctance to approach any ship when on their trans-ocean journey, yet in Arctic waters, though not so bold as the larger bird, they did not shun the company of ships. It appears to be a characteristic of this skua to migrate at considerable heights. Those seen

on May 8th in 51° N. 33° W. were flying at 800 feet and several of the other observations confirmed this fact.

Positive identification always rested on the long tail, an easily seen and distinct feature, it being so much longer and finer than in the other types. This skua always appeared a slenderer bird with a buoyant flight, becoming as it were tern-like. Because of these and other features it is believed that no immature birds were seen.

RAZORBILL—*Alca torda* Linn.

Amongst the most difficult birds to recognize and separate at sea may be named the Razorbill and the guillemots in winter plumage, for the distinctive differences are such that very favourable conditions are required to observe them. For this reason identification was not always certain.

The Razorbill, however, can be classed as an offshore bird which seldom wanders beyond the limit of these seas in winter and does not even reach these limits in summer. It was found to be much more common on the Grand Banks than on the continental shelf west of Ireland. The most westerly records in the eastern Atlantic were on the Rockall and Porcupine Banks. In the west it was recognized as far east as 48° N. $46\frac{1}{2}^{\circ}$ W. on November 28th, 1943, though a few undetermined auks occurred as far as 42° W.

COMMON GUILLEMOT—*Uria aalge* (Pont.).

Only two satisfactory pelagic records of *Uria aalge* have come to light and in view of the number of trips we did and the time spent

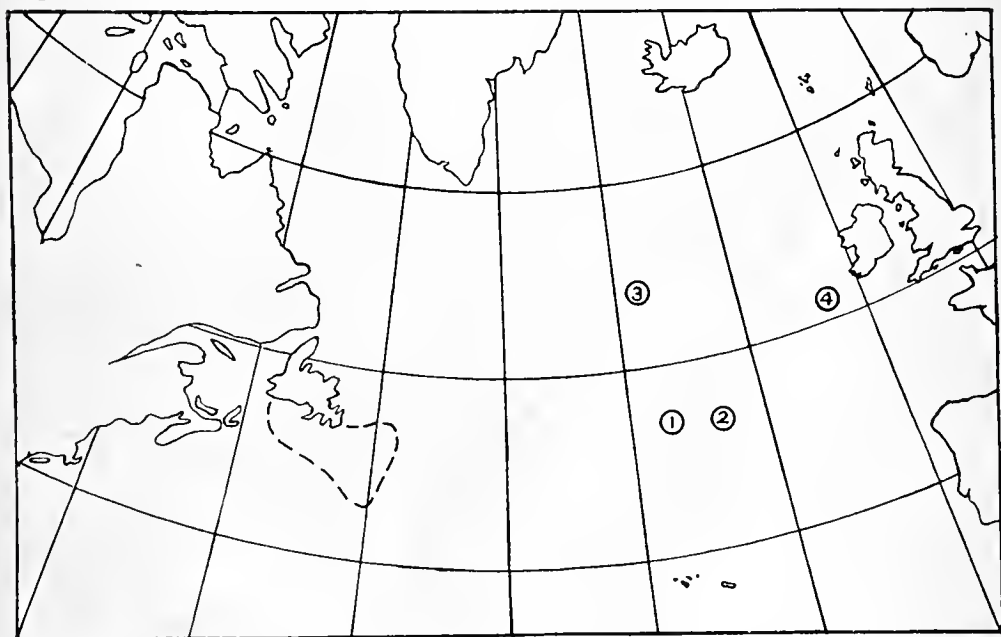


Fig. 17. PELAGIC RECORDS OF COMMON GUILLEMOT

- | | |
|---------|--------------------------|
| 1. Dec. | 3. July (Jespersen). |
| 2. Feb. | 4. June (Wynne-Edwards). |

at sea, it is obvious that the species is rare away from its inshore haunts. Both records are for winter months and in comparatively southern latitudes: December 9th, 1944, $45^{\circ} 46' N.$ $21^{\circ} 26' W.$, 530 miles south-west of the Fastnet, and February 8th, 1945, $45^{\circ} 26' N.$ $26^{\circ} 35' W.$, 380 miles north of the Azores. Wynne-Edwards has a summer record for June 9th, 130 miles W.S.W. of the nearest point on the Irish coast and Jespersen (1930) came across a few single birds in July in $54^{\circ} N.$, $27^{\circ} W.$

BRÜNNICH'S GUILLEMOT—*Uria l. lomvia* (Linn.).

Few guillemots were recognized outside coastal waters, and many times no decision could be reached on the identity of the birds concerned owing to the confusion with the Razorbill. Our records are confined to the winter months on the Grand Banks and sometimes in Newfoundland coastal waters. Brünnich's Guillemot seemed to be somewhat more common than the Razorbill and more regularly seen out to the limits of the banks and beyond.

BLACK GUILLEMOT—*Uria grylle* (Linn.).

This species was seen on one occasion only at sea, on June 16th, 1944, about 40 miles south of Cape Race.

LITTLE AUK—*Alle alle* (Linn.).

The Little Auk was seen in the winter months from October onwards, remaining as late as June, though by the end of April the bulk had moved north again. Reference to the map will indicate that the densest part of its range is over the Grand Bank of Newfoundland and there is apparently a definite tendency to avoid the warm waters of the Gulf Stream. It spreads out from the Bank in a north-east to south-west direction, becoming rare at $30^{\circ} W.$

It appeared first in the middle of October (17th to 19th) in mid-ocean, and in Newfoundland waters a few days later (29th) it was already very common. On the southern tip of the Bank, however, none was seen on October 14th to $44^{\circ} N.$; but when we were crossing the same area on December 16th and 17th, they were abundant. For the 11th the diary notes "turned very cold to-day and sea temperature dropped considerably. Little Auks became common after we crossed the edge of the Banks. Once west of the Grand Banks they became scarce and disappeared at $58^{\circ} W.$ " In the second week of January, they had a wider distribution in this area, from $59^{\circ} W.$ to $48^{\circ} W.$

In the Grand Banks area concentrations of thousands of birds were common; in fact there were so many auks that no attempt could be made to count them. On six days Little Auks were recorded between $35^{\circ} W.$ and $45^{\circ} W.$; on two of which there were fair numbers, but on the remaining four only single figures. There were three records of small flocks between $29^{\circ} W.$ and $35^{\circ} W.$ Two more records of what may have been this auk, although they were

unclassified, were made on October 14th and 15th in 17° W. and 21° W. respectively.

In the beginning of April Little Auks began to disappear from the southern half of the Bank and were only frequent from 63° W. to 50° W. at 42° N. Again in early May they were only recorded in

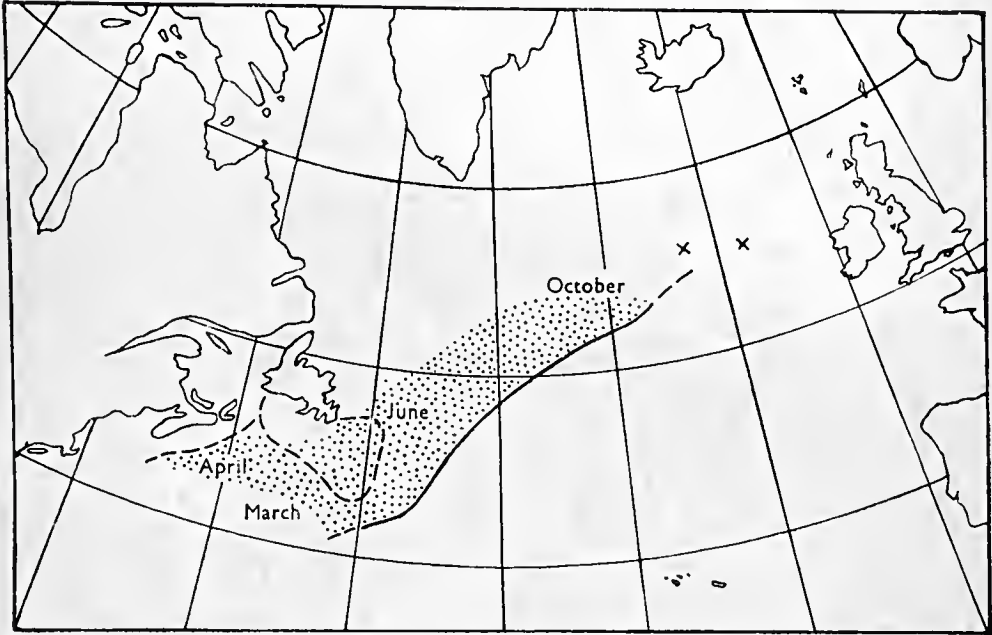


Fig. 18. WINTER DISTRIBUTION OF LITTLE AUK

X Unclassified records.

the area between the Banks and Nova Scotia. This may be the movement north of birds that wintered off the American coast south of the area we covered.

Stragglers appear to remain to a comparatively late date, two small flocks being seen on the north-east shoulder of the Grand Banks (47° N. 49° W.), June 15th, 1944.

Characteristics.

On February 17th during a gale of 55 knots the ship disturbed many Little Auks on the water and it was found that on taking wing they could make headway at approximately five knots. This, however, was maintained only for a short distance, when they plunged into the sea again. Very often in rough weather it was almost a physical impossibility for them to become air-borne. Owing to their high wing loading they have to take a short run before flying speed is attained and time after time a wave would hit or break over them, bringing them, into the sea again. In such weather they usually escaped by diving and swimming. To watch these birds in a raging sea almost makes one wonder whether they are not more fish than bird. Huge waves break over them continually

and yet they are more concerned with the danger of the approaching ship.

On one occasion during a calm day when sailing with a light following wind the auks ahead of the ship all dived as it approached, because it was necessary for them to take off into wind and this only brought them nearer to the source of danger.

The size of this bird is a most reliable and distinctive feature and one on which complete faith can be based; even at long distances when one sees only little white specks speeding across the waves, it is unfailing.

PUFFIN—*Fratercula arctica* (Linn.).

Distribution.

In summer this bird was commonly met with in all coastal zones and occasionally as far as the limits of the continental shelf. The wide dispersal in winter, however, seemed to vacate this area.

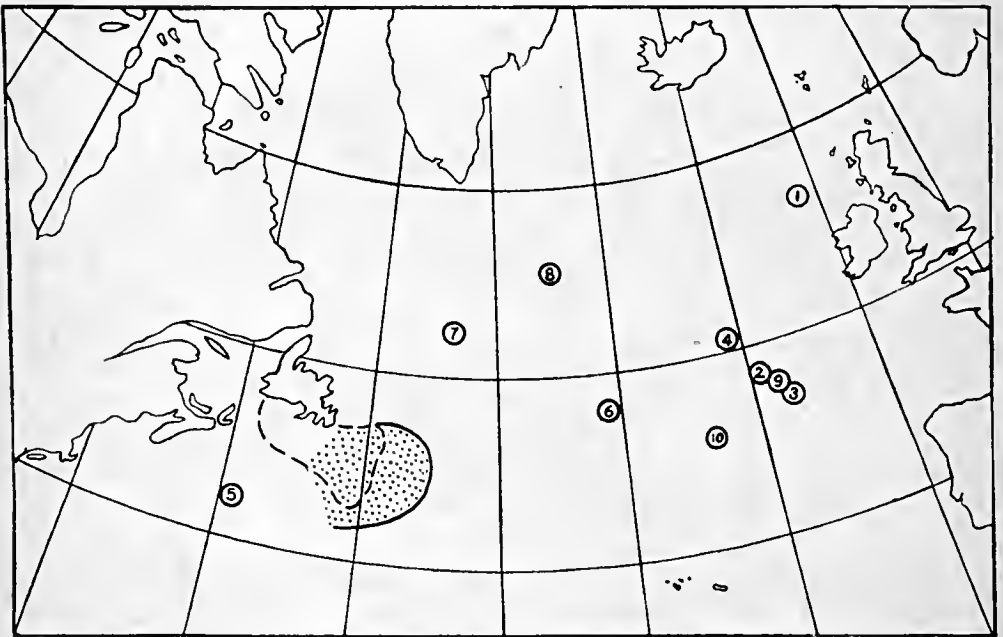


Fig. 19. DISTRIBUTION OF PUFFIN

- | | | |
|----------|---------------------------|------------------------------|
| 1. July. | 4. Feb. | 7. Dec. (Wynne-Edwards). |
| 2. Oct. | 5. Sept. (Wynne-Edwards). | 8. July (Wynne-Edwards). |
| 3. Dec. | 6. Dec. | 9. March (H. G. Alexander). |
| | | 10. March (H. G. Alexander). |

All our oceanic records are for the winter months excepting one in July, 140 miles north-west of Ireland. The other occurrences were well away from land.

That the Puffin will travel long distances is confirmed by the ringing recovery of two birds hatched and ringed on St. Kilda and shot in Newfoundland in December of the same year. We can never know the route these birds took, but in view of our mid-ocean

records it is quite possible that they took the shortest way and did not touch the Iceland and Greenland areas. Three of the records are grouped round 50° N. and 20° W. for October, December and February, and H. G. Alexander records them again in this area (Nicholson, 1946) in March, but they probably have no special significance. Another was a December record for mid-Atlantic, and Wynne-Edwards (1935) has one for September, 400 miles due south of Cape Farewell. Prof. Wynne-Edwards also kindly informs us that he can now add another mid-ocean record, made on July 5th, 1946, in $55^{\circ} 45' \text{ N. } 35^{\circ} 45' \text{ W.}$

During October no Puffins were seen on the southern tip of the Grand Bank, but whilst crossing the same area in early December they were present in small numbers. Throughout that month and January and February, they increased and extended east until the furthest point was reached in the last days of February and on March 1st at 45° N. 45° W. On the next trip in April they had disappeared.

Characteristics.

On February 17th, 1945, we were able to watch the behaviour of these birds during a severe gale. We had an anemometer on board, so it was possible to measure the wind speed at any given time up to 60 knots. When the velocity had reached 55 knots it was found that the species could fly fairly easily into the wind at what seemed to be 8-10 knots. This was only continued for a short distance before the bird either settled in the sea again or turned sharply with the wind and disappeared astern. The ship was sailing into the wind and it was significant that the only birds to take to the wing were those directly threatened by the ship's presence. During the afternoon the wind velocity reached approximately 80 knots and no Puffins were seen to leave the water. Occasionally a glimpse would be caught of one by the ship's side, but it would always dive.

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